

SOCIAL SCIENCE II

Part 1

Standard IX



Government of Kerala
Department of General Education

State Council of Educational Research and Training (SCERT), Kerala

2024

THE NATIONAL ANTHEM

Jana-gana-mana adhinayaka, jaya he
 Bharatha-bhagya-vidhata
 Punjab-Sindh-Gujarat-Maratha
 Dravida-Utkala-.Banga
 Vindhya-Himachala-Yamuna-Ganga
 Uchchala-Jaladhi-taranga
 Tava subha name jage,
 Tava subha asisa mage,
 Gahe tava jaya gatha
 Jana-gana-mangala-dayaka jaya he
 Bharatha-bhagya-vidhata.
 Jaya he, jaya he, jaya he,
 Jaya jaya jaya, jaya he!

PLEDGE

India is my country. All Indians are my brothers and sisters.

I love my country, and I am proud of its rich and varied heritage. I shall always strive to be worthy of it.

I shall give respect to my parents, teachers, and all elders, and treat everyone with courtesy.

To my country and my people, I pledge my devotion. In their well-being and prosperity alone lies my happiness.

SOCIAL SCIENCE II

9

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First Edition : 2024

Typeset and Layout : SCERT

Printed at : KBPS, Kakkanad, Kochi

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Dear Students,

The revised textbook of Social Science II is with you now. The content of this book comprises the concepts in Geography and Economics. Human life in this diverse world is moulded according to the micro-geographic features of the respective habitation of people. Keeping this in mind, this textbook has adopted a regional approach in geography to expound the geography of India. This approach studies the unique characteristics of each region, taking a close but detailed look at its geographical features and the entwined lives of people living there. A study of this kind will help you adapt to any situation in any part of the world in which you are destined to build your life. This textbook will surely convince you that a scientific study of geography is essential for an individual to develop as a responsible citizen of this world.

You should also have sufficient knowledge of the many possibilities of wealth-generation and distribution that are necessary for everyone to live in this society as a social being. For this, there should be a clear understanding of human resource development, its challenges and also its economic perspective. Hence, we have taken care to include these aspects in the textbook.

An opportunity to recognise the possibilities of production as well as consumption in the context of the economic system, and its basic sectors are also provided to you in the textbook.

Geography and Economics play a significant role in the cultural and social development of human beings. The Social Science II textbook for Class 9 internalises and acknowledges this fact, and has been prepared to welcome a new world order accordingly. Hope you will receive it with open minds, thus expanding your world of knowledge.

With love and regards

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Director
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Some symbols are used in this book for ease of study



For additional reading - not for assessment



Learning activity



Assessment Questions



Extended Activities

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a **[SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC]** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the **[unity and integrity of the Nation]**;

IN OUR CONSTITUENT ASSEMBLY
this twenty-sixth day of November, 1949 do
**HEREBY ADOPT, ENACT AND GIVE TO
OURSELVES THIS CONSTITUTION.**

-
1. Subs. by the Constitution (Forty-second Amendment) Act, 1976. See 2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
 2. Subs. by the Constitution (Forty-second Amendment) Act, 1976. See 2, for "Unity of the Nation" (w.e.f. 3.1.1977)



1

On the Roof of the World

India is a land of mixed culture and pluralism. The evolution of this unique cultural diversity is a lengthy history. In fact it began with the primitive human groups who came to inhabit this land from far off lands in very ancient times. Later on, these people got mixed with several other human groups that had come to this land through different routes over different periods of time and whose generations have been living here over thousands of years. This diversity is evident in language, costumes, traditions, festivals, beliefs, agriculture and the like.

The geographical diversity of our country has a decisive role in the country's cultural diversity. The Northern mountains standing as a formidable fortress in the northern part, the vast and fertile plain just to the south of it, the desert land to the west, the extensive plateau in the central part, the lengthy coastal stretch along the eastern and western sides, then the islands.....

Aren't you convinced that India's topography is very diverse? This topographical diversity along with the country's special location, has contributed to the existence of monsoon climate in this region. Human life and agricultural pattern have been set in India over centuries in accordance with this diversity.

In spite of such vivid diversities, there are factors that enjoin this land and its people with a delicate thread of unity. We are going to discuss all such aspects in this textbook.

Based on topography, India can be divided as the following physiographic divisions.

1. The Northern Mountain Region
2. The North Indian Plain
3. The Peninsular Plateau
4. The Indian Desert
5. The Coastal Plains and Islands



Fig 1.1

The Northern mountain ranges that form the north and the north eastern boundary of the Indian subcontinent includes several mountain ranges that originate from the Pamir Knot known as 'the Roof of the World' and it extends up to Purvachal in the east.



Observe the given map (Fig 1.1) and find the location of the Northern mountains. Identify the other mountain ranges that originate from the Pamir Knot and list them.

- Kunlun
-

The relatively young and lofty northern mountain ranges have been formed by the folding of rock layers. The Northern mountain extends from River Indus in the west to River Brahmaputra in the east for nearly 2400 km and has a width ranging from 150 to 400 km. The region has a peculiar landscape with several high peaks, glaciers and valleys.

Based on the topographical characteristics, the Northern mountain region can be classified into three.

1. Trans Himalayas
2. The Himalayas
3. The Eastern Hills



Fold Mountains

Fold mountains are formed due to the compression of sedimentary rock strata of the earth's crust. This process is known as folding. The Himalayas and the Alps were formed through this process.



Generally mountains are the landforms with an average elevation above 900 metres from the sea level. Observe the given map (Fig1.1) and find the major mountain ranges in India and include them in My Own Atlas.

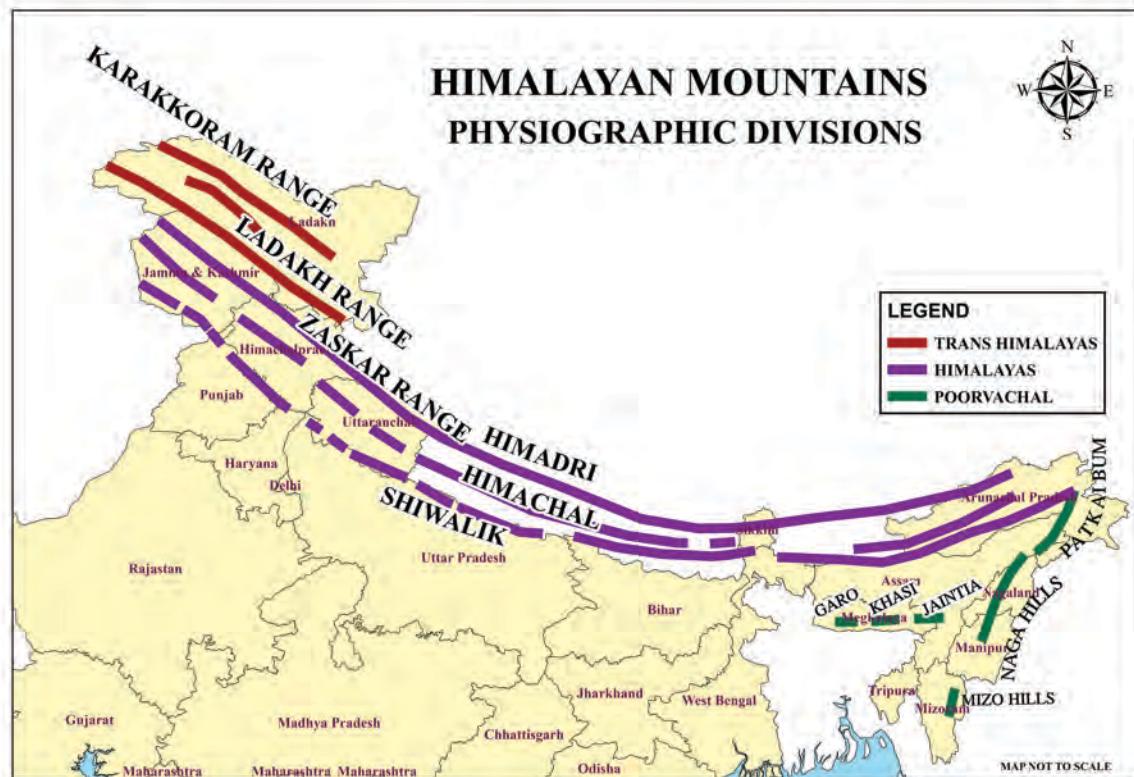


Fig 1.2



Complete the following table with the help of the given map (Fig 1.2). The index of the map will help you complete this work.

Trans Himalayas	Himalaya	Eastern Hills
<ul style="list-style-type: none"> Karakoram • 	<ul style="list-style-type: none"> Himadri • 	<ul style="list-style-type: none"> Naga Hills •

Now, you have familiarised with the major mountain ranges of the Northern mountains and their location.

The northern most division of the Trans Himalayas is also known as the Tibetan Himalayas. Having an average elevation of 3000 metres, the Trans Himalayas has an approximate width of 40 km and a length of 965 km. The Karakoram range connects Himalayas with the Pamir Knot.

Don't you see three parallel ranges that extend to the south of the Trans Himalayas towards the east? These parallel mountain ranges are the Himadri, The Himachal and the Shiwaliks. These three ranges together form the Himalayas.



Observe the map (Fig 1.2). Find the location of the Himadri, the Himachal and the Shiwaliks from the map and list out the states in which these ranges are situated.

The Shiwalik Range, which is the southern most of the Himalayan ranges and forms the borders of the Ganga Plains, has a width ranging from an average of 60 to 150 km. As it is the outer most part, this range is also known as the Outer Himalayas.

To the north of the Shiwaliks, is the Himachal mountain range, with an average elevation ranging from 3500 to 4500 metres above the mean sea level. This range is also known as the Lesser Himalayas and has a width ranging from 60 to 80 km.

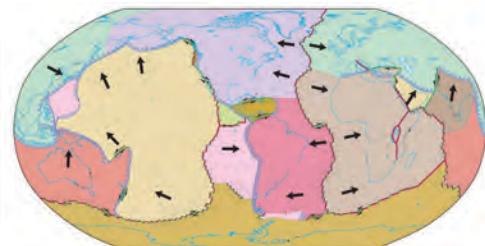
The Himadri, which is also known as the Greater Himalayas or the Inner Himalayas, is the mountain range that lies at an average elevation of about 6100 metres above the mean sea level. The width of the range is nearly 25 km. These are snow-clad mountains.

Most of the world's highest peaks are situated in this range.

Origin of the Himalayas

Do you know that the Himalayas, which is one of the lofty mountains of the world, is still growing? What may be the reason?

Tectonic Plates



Lithospheric plate includes the crust and the upper mantle. Lithosphere consists of fragments of varying sizes. Portions of such lithospheric parts, each with thousands of kilometres of width and nearly 100 km thickness are known as a lithospheric plates. These plates may cover the continental portion, ocean bottom or both.

This is due to plate tectonics. Tectonic plates are the crustal rock blocks of continental and oceanic parts. Asthenosphere is the zone beneath the lithosphere where the rocks are molten and are in a semi-plastic state due to the high temperature. The tectonic plates move very slowly above the asthenosphere.

Earth processes like orogenic (mountain building) are active along the plate boundaries. There are three types of plate boundaries: Convergent boundaries, Divergent boundaries and Transform (Shear) boundaries.

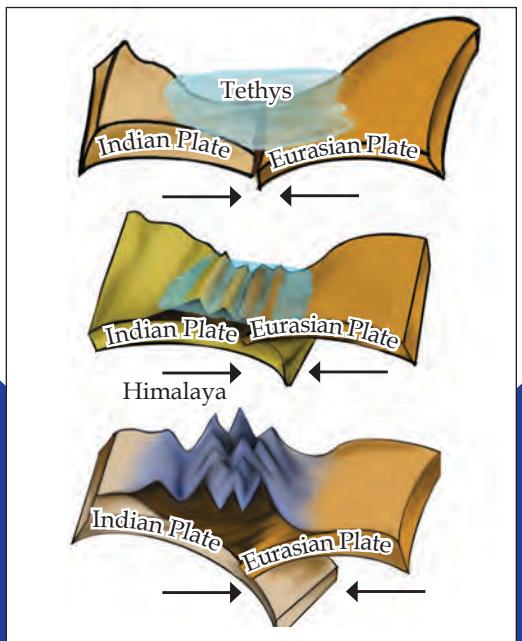
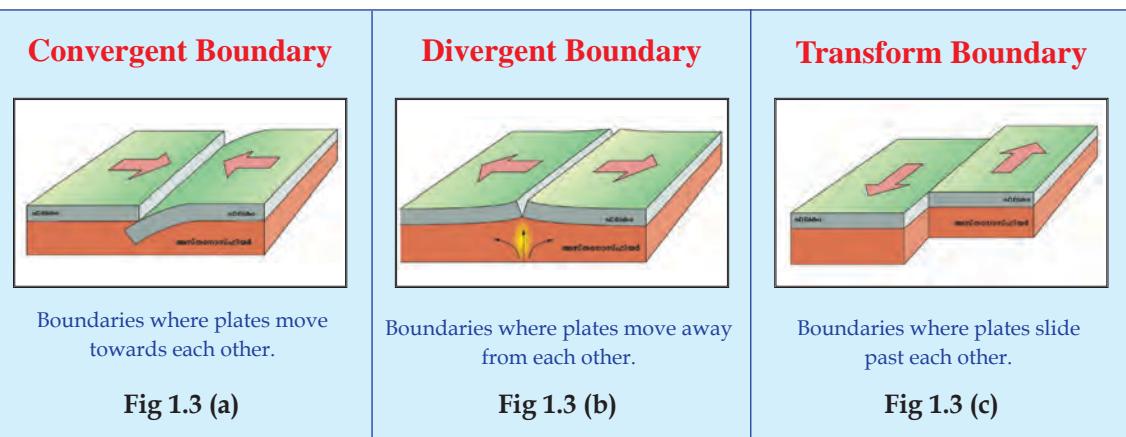


Fig 1.4
Formation of the Himalayas

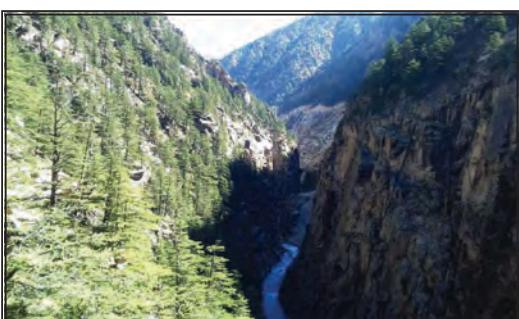
Rock layers along the convergent boundary get folded due to the compression of lithosphere plates. This leads to the formation of fold mountains.

The Indian Plate which includes the Peninsular India and the Australian continent was located in the southern hemisphere about 150-160 million years ago. As it moved northwards and came close to the Eurasian Plate, the Tethys seabed situated between the two landmasses, started uplifting (Fig 1.4). This is how the Himalayas were formed.



In which plate boundary was the Himalayas formed?

Gorges



(Fig 1.5)
A Gorge across the Himalayan Range.

Deep valleys with steep sides are known as gorges. River Indus, River Ganga and River Brahmaputra create gorges across the Himalayan ranges through erosion.

The Himalayas and its regional divisions

The rivers that originate from the Himalayas create deep gorges in their course. The regional divisions of the Himalayas have been made on the basis of these cross-cutting rivers. The regional divisions of the Himalayas are:

1. Western Himalayas
2. Central Himalayas
3. Eastern Himalayas

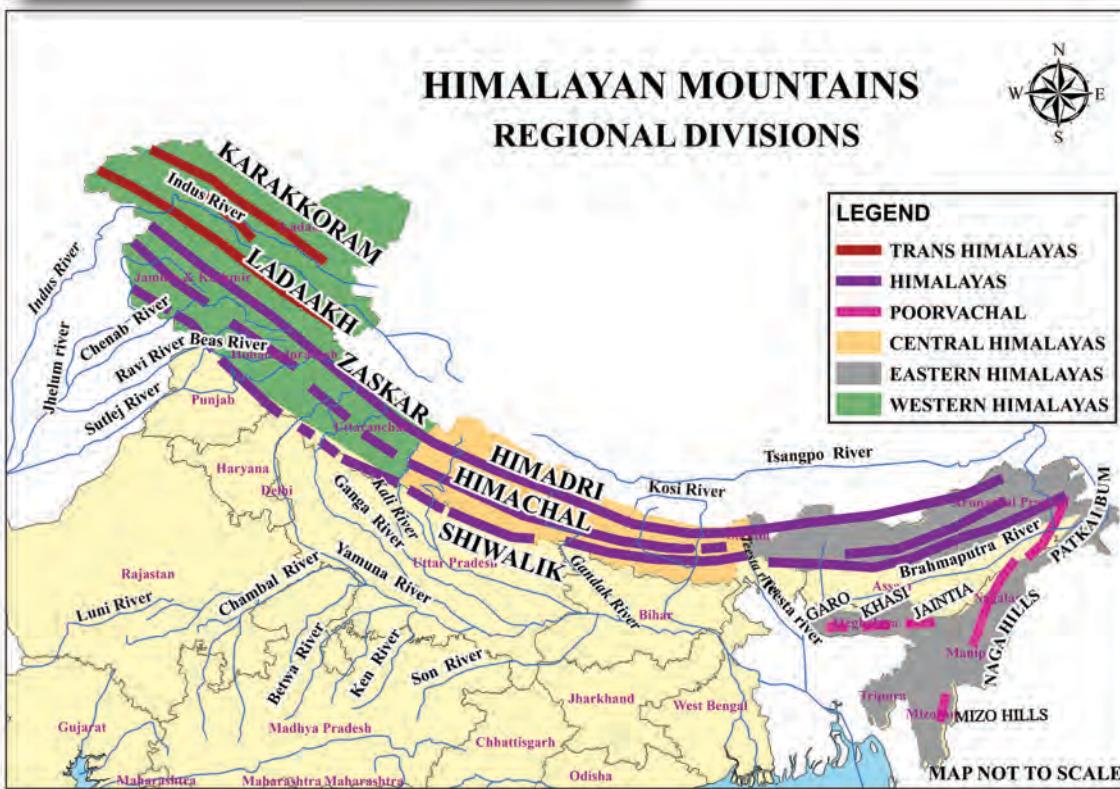


Fig 1.6



The table given below shows the three regional divisions of the Himalayas and the rivers that separate them. Mark the location of these divisions and rivers in the outline map of India with the help of the given map (Fig 1.6).

Himalayan Zone	Separating Rivers
<ul style="list-style-type: none"> ● Western Himalayas ● Central Himalayas ● Eastern Himalayas 	<ul style="list-style-type: none"> ● Indus, Kali ● Kali, Teesta ● Teesta, Brahmaputra



Fig 1.7
Mount K2

The Western Himalayas which stretches from the Indus river valley to the north of Jammu and Kashmir upto the Kali river valley (River Ghaghara's tributary) in the eastern part of Uttarakhand can be classified into three: Kashmir Himalaya, Himachal Himalaya, Uttarakhand Himalaya.

Kashmir Himalaya

The Kashmir Himalaya which extends over nearly 3.5 lakh sq.km in Jammu and Kashmir and Ladakh region is roughly 700 km long and 500 km wide.

The important mountain ranges of Kashmir Himalaya containing snow covered peaks, valley and hill ranges are Karakoram, Zaskar, Ladakh and Pir Panjal.

Mount K2 (Godwin Austin - 8611 metres), the second highest peak in the world, is situated in the Karakoram range.

Siachen, Boltoro etc. are the important glaciers of this region. These glaciers help the River Indus and its tributaries, such as Ravi, Jhelum and Chenab, have a luxuriant water flow throughout the year.

The freight and passenger movement on either side of the mountains is made possible through the mountain passes.

Passes are the comparatively easier natural passages in the mountainous terrains. Banihal Pass across the Pir-Panjal Range that connects Jammu with the Kashmir Valley is an example.



Siachen Glacier



Siachen Glacier is known as the world's highest battlefield.



Why are the Himalayan rivers water-rich year-round?

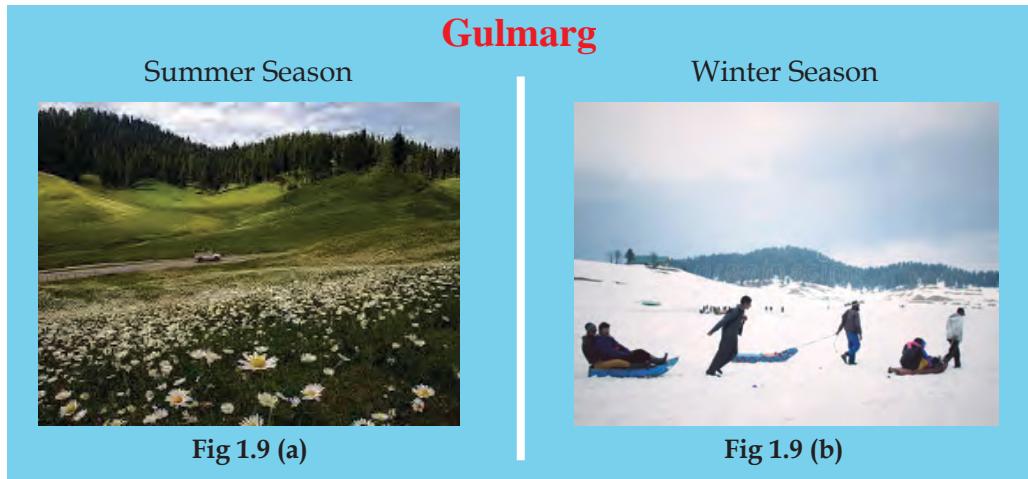


Mark the important passes of the Himalayas in the outline map of India and include it in My Own Atlas.

There are numerous fresh water lakes in the Kashmir Himalaya and Dal Lake is important among them. Srinagar is situated on the banks of this lake. It is an important tourist and commercial centre too. The Shikara boats and floating markets are the hallmarks of Kashmir tourism.



Fig 1.8
A Shikara Boat in Dal Lake



'Margs' are meadows formed along the mountain slopes during the summer season. As these margs get covered under snow during winter, the region attracts tourists for winter games such as skiing. Sonmarg and Gulmarg are examples.

Himachal Himalaya

The major share of Himachal Himalaya is the state of Himachal Pradesh. Chenab, Ravi and Beas are the important rivers in this mountainous region.

Dhowladhar and Pir Panjal are the mountain ranges in this region. Several freshwater lakes like Chandratal and Surajtal are found in these mountain ranges. The Baralacha La Pass that connects Himachal Pradesh with Ladakh and Rohtang Pass that connects Kulu Valley with Lahul and Spiti Valleys are the important passes in Himachal Himalaya.



Fig 1.10
Chandratal Lake



Fig 1.11
Rohtang Pass

Beautiful valleys such as Kulu, Kangra and Lahul and tourist centres such as Shimla and Manali attract numerous tourists. In these places where snowfall and mild winters are experienced, hot springs can also be seen at a few places.



Fig 1.12
Kulu Valley

How are hot springs formed?



Rainwater seeps into the earth and becomes a part of the ground water. In areas where mountain building processes (orogenic processes) are active, the sub surface rock layers get heated up and these rock layers warm up the ground water. The ground water, thus warmed, rises to the surface as hot springs. Numerous hot springs can be seen in the Himalayan terrain, for eg., Nubra Valley, Manikaran, Kheerganga. Electric power can be generated using this geothermal energy. Such a geothermal power plant is functioning at Manikaran hotspring in Himachal Pradesh.

Uttarakhand Himalaya

The Uttarakhand Himalaya is part of the Himalayas which extends from River Satluj to River Kali. Its western side is known as Gaddwal Himalaya and the eastern side is known as Kumaon Himalayas.

Several high peaks such as Nandadevi, Kamet, Badrinath, Kedarnath etc. are situated in the Uttarakhand Himalaya.

The Gangotri and Yamunotri glaciers from where the rivers Ganga and Yamuna originate and freshwater lakes such as Nainital and Bhimtal are also situated in this region.



Fig. 1.13
Nainital Lake

The flat valleys seen in between the Lesser Himalayas and the Shiwalik hill ranges are Duns. Dehradun in Uttarakhand state is famous among these.

The alpine summer meadows along the higher altitude mountain slopes of this region are called 'Bugyals'. The Bugyals, when get buried under snow during winter, is made use for winter tourism in many areas.

Eg:- Dayara Bugyal, Gorson Bugyal

Bugyals and Shepherds

The meadows in the Himalayas found between 3000 to 4500 metres (between the tree line and the snow line) are called bugyals in the Gadwal region.

Bugyals remain under snow during winter. When the snow melts away in summer, Bugyals are transformed into green meadows. The shepherds reach these meadows from the dry valleys with their herds during the summer season. Leaving their dry valleys, they make temporary camping sheds and live along with their livestock in the luxuriant green bugyals. With the advent of winter, they leave these hills and live in the valleys until the next season. This seasonal migration along with their domestic animals from one grazing ground to another is known as transhumance.



Fig 1.14
A Bugyal in the Gadwal Region



Fig 1.15
Teesta River

Central Himalayas

The part of Himalayas from River Kali to River Teesta is the Central Himalayas. It is also known as the Nepal Himalaya, since the majority of this region falls in Nepal. Only the Western Sikkim and Darjeeling region of the Central Himalayas are in India. The world's highest peak - Mount Everest-is in Nepal. Mount

Kanchenjunga and the Nathula Pass along the India-China border are located in this region.

The swift flowing Teesta River and its stream terraces are the features of the Sikkim Himalaya.

The British, having identified the favourable conditions, started tea cultivation here during the colonial era. The Darjeeling tea produced here is internationally famous.



Find the parts of Central Himalayas in India from Fig 1.6 and mark them in My Own Atlas.

Eastern Himalayas

These are low hills as compared to the Western Himalayas, extending from River Teesta to River Brahmaputra in the east. This is also known as Assam Himalayas. The highest peak in this region is Namcha Barwa (7756 m).

Brahmaputra, Kameng, Lohit and Subansiri are the important rivers in the Eastern Himalayas region.

The Bomdila which connects Arunachal Pradesh with Lhasa, the capital city of Tibet and Diphu, which connects with Myanmar, are the important passes in this region.



Fig 1.16
Bomdila Pass

Purvachal Hills

The Himalaya mountains are seen as hills of lesser elevation in the north – south direction from Arunachal Pradesh up to Mizoram. These hills having an average elevation from 500 to 3000 metres above mean sea level are known as Purvachal Hills. Of these the most important are the Patkaibum, the Naga Hills, the Mizo Hills and the Manipur Hills. Cherrapunji and Mawsynram located here receive the highest rainfall in the world.



Fig 1.17
A Hilly Area in the Purvachal Region



Fig 1.18
Root Bridge in Meghalaya

Fig 1.18 is the picture of a root bridge, constructed by the local folk, using braided tree roots in order to cross turbulent streams. It is a clear evidence of the harmonious co-existence of people with nature.



Keibul Lamjao Floating National Park

The Keibul Lamjao National Park is situated in the largest freshwater lake of North Eastern India (Manipur). The small islands formed in the lake by the floating organic matter along with soil are called Phumdi.

The Keibul Lamjao National Park consists of several such phumdis in Loktak Lake. Each phumdi contains unique ecosystems including plants, birds and small organisms. The Loktak Lake is included in the Ramsar List of Sites for Watershed Conservation.



Phumdis in Loktak Lake

Climate

The Himalayas, forming India's northern boundary along with the other continuous mountains together makes a climatic divide between the Indian Subcontinent and Central Asia. The climate of the Himalayan mountain zone varies according to the elevation and the topography of the respective parts of the region.

Mild climate prevails along the lower mountain slopes and the Shiwalik foothills. But at higher elevations, it will be considerably low temperature and winter climate conditions at extremely high altitudes and in the Ladakh region, Pole-like extreme winter climate is experienced.



Why are there numerous hill stations in the Himalaya Mountains?

South West Monsoon rains are received along the southern slopes of the Shiwalik ranges and the North Eastern India. Snowfall is common in the higher regions of the mountains.

The Monsoon winds blowing from the Bay of Bengal get trapped in between the Assam Himalayas and the Purvachal Hills. As a result, most of its moisture reaches back to earth as rain. Hence, the North Eastern India, especially the Meghalaya Plateau, receives heavy rainfall.

Drainage System

Indus, Ganga, and Brahmaputra rivers along with their tributaries, create the Himalaya drainage system. As these rivers are rainfed and snow-fed, they are perennial (water rich) throughout the year.

These rivers have turbulent flow in their mountainous course. Flooding and channel deviation are common in the plains. These rivers create land forms such as V- shaped valleys, gorges and waterfalls.



The Himalayan rivers are flood prone even during summer. Why?



Waterfall

Free fall of water vertically from a cliff in the course of a river or stream is called waterfall. It is caused due to the excessive erosion of the soft rocks in the course of rivers.

V- Shaped Valleys

During the course of river flow, the lateral erosion leads to the enhancement of width of the river valley and the vertical erosion leads to the depth of the valley. As a result of the whole process, river valleys with slanting sides are developed. Since they resemble the English alphabet 'V', the valleys are known as V- shaped valleys.

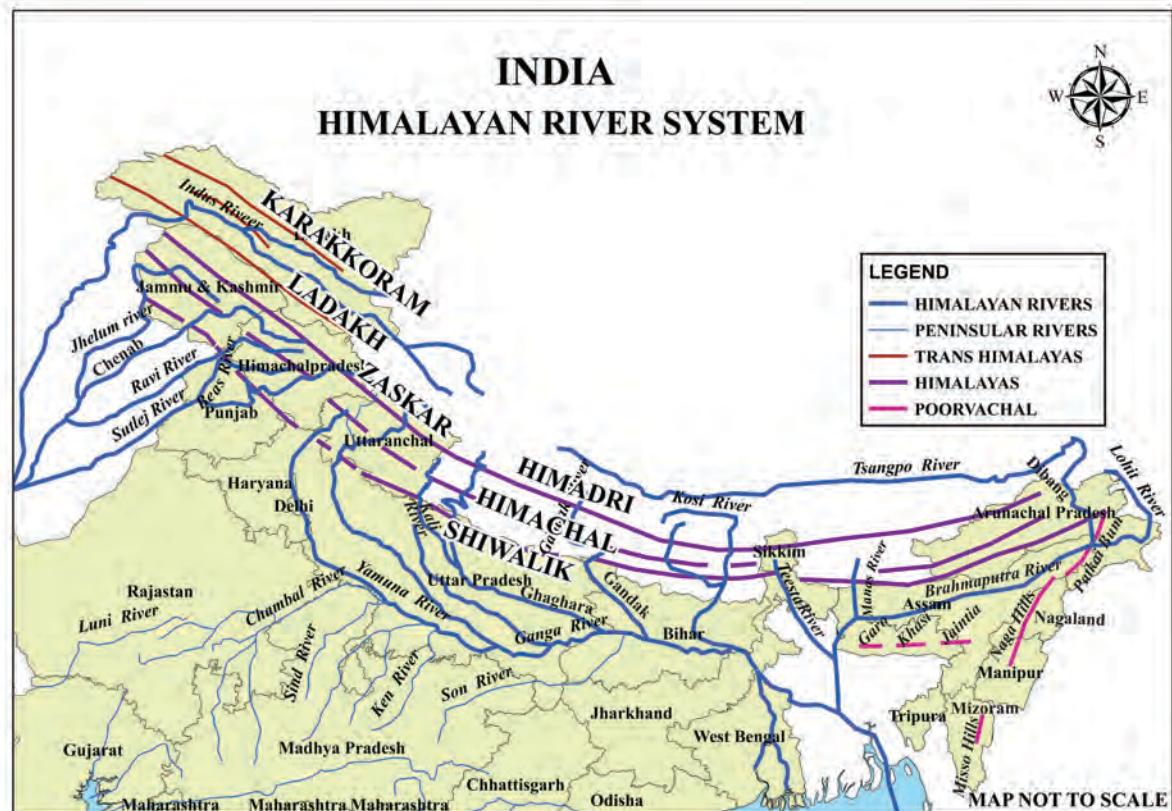


Fig 1.19

River Indus originating from Bokharchu glacier near the Manasarovar Lake and its tributaries are the important drainage system of the North Western Himalaya.

River Ganga originating from the Gangotri glaciers in Gomukh and its tributaries such as Yamuna, Ghaghara, Gandak, Kosi etc. are the important rivers of Uttarakhand and Nepal.

River Brahmaputra originating from Chemayungdung glacier near Manasarovar Lake and its tributaries such as Dibang, Lohit, Manas etc. are the drainage system of the Eastern Himalaya.



Identify the Himalayan rivers from the map (Fig 1.19) and prepare a Himalayan drainage map for 'My Own Atlas'.

Soil

Mountain soil and forest soil are commonly seen in the Himalayan terrain. The soil texture and particle size vary according to mountain environment.

Fine grained soil with high humus content are seen in the valleys, whereas in the high slopes, coarse grained soil with low humus content can be seen.

Alluvial deposition is mainly seen in the valleys. Karewas is the glacial sediment deposited in the Kashmir Valley. This humus-rich fine soil is ideal for saffron cultivation.



Fig 1.20
Saffron Cultivation



What could be the reason for the occurrence of alluvial soil in the valleys between the mountain ranges?

Natural Vegetation

Differences in factors like elevation, topography, soil type and climate lead to regional variations in natural vegetation in the Himalayan terrain.

As the average annual rainfall received is above 200 cm, more tropical evergreen vegetation is found in the Eastern Himalayas and the North Eastern Hills.

Temperature decreases with altitude and the corresponding change is also visible in the natural vegetation of the Himalayan Mountain region.

Depending on the changes in the altitude, a spectrum of natural vegetation from evergreen forests to the vegetation type of the cold climates such as Tundra can be found here.



Fig 1.21
Coniferous Forest in the Himalayan region

Semi-evergreen and deciduous forests are seen in the valleys and the lower mountain slopes. Moist deciduous forests are seen at altitudes ranging from 1000 to 2000 metres. Coniferous tree varieties such as pine and deodar grow more along the mountain slopes. Shrubs such as junipers and rhododendrons grow at higher altitudes whereas in the highest altitude, alpine meadows are seen.

Wild Life



Fig 1.22
One-horned Rhinoceroses

Himalayan region is the natural habitat of several wild animals like yak, musk deer, single-horned rhinoceros and snow leopard.

Biosphere Reserves, National Parks and Wildlife sanctuaries have been established for wildlife protection in the Himalayan terrain.



Major National Parks

Western Himalaya	Eastern Himalaya
Dachigam (Jammu & kashmir)	Kanchenjunga (Sikkim)
Hemis (Ladakh)	DibruSaikhowa (Assam)
Valley of Flowers (Uttarakhand)	Kaziranga (Assam)
Corbett (Uttarakhand)	Manas (Assam)
Rajaji National Park (Uttarakhand)	Keibul Lamjao (Manipur)

Agriculture

Agriculture is sparse in the mountainous region due to the limitations of its terrain. Elevation, steepness of slope, immature soil, low temperature etc. are the adverse factors. Still the resident communities engage in different subsistence agricultural activities. They terrace the mountain slopes to cultivate suitable crops like paddy, legumes and potatoes during the rainy season and wheat, and temperate fruit crops during the spring.

Tea is a major crop along mountain slopes and valleys of Eastern Himalayas, especially in the Assam and Darjeeling regions.

The tribal population of the North Eastern Hills, on the other hand, follow traditional practices such as shifting cultivation.

Animal rearing

Animal rearing is the main occupation of those living in the Himalayan Mountains. Climate varies according to elevation and the type of animals reared also varies accordingly. Goat and cattle are kept in the valleys whereas sheep and horse are reared in the mountain slopes. At the extremely cold regions of Himachal and Ladakh, species that can resist severe cold such as yak are reared. Gujjars are the shepherd tribes who live in the mountain meadows of Western Himalayas.



Fig 1.23
A Terrace Farm in the Himalaya



Fig 1.24
An Apple Orchard in the Himalaya



Fig 1.25
Animal Husbandry

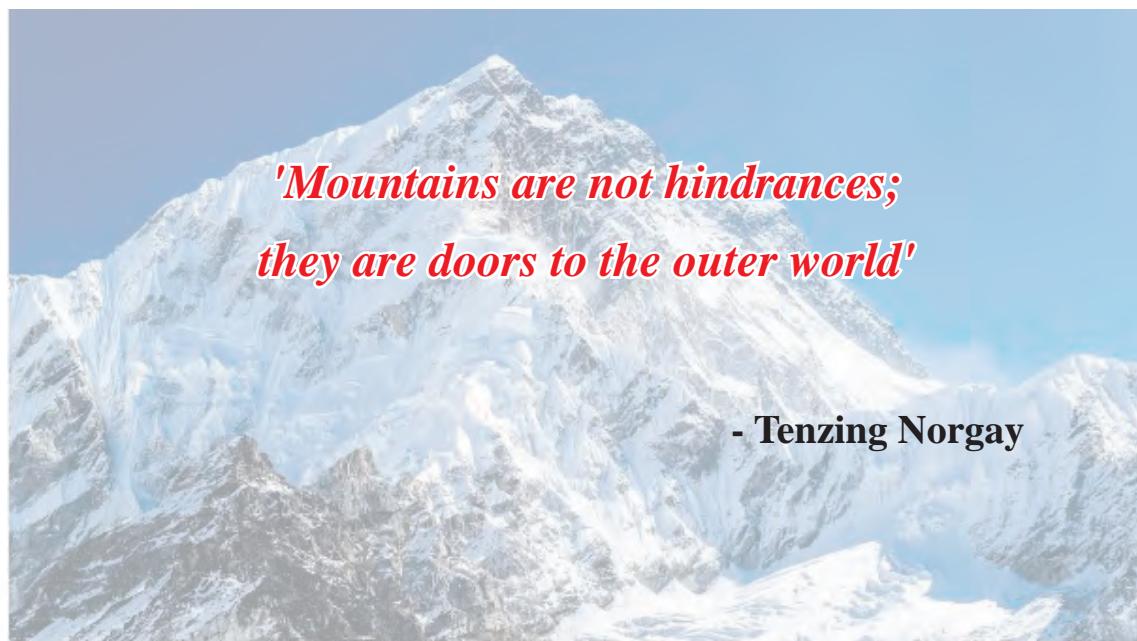
Inquire more about their life with the help of information technology.

Tourism

As the geographical conditions are favourable, the entire Himalayan region has become a zone with high economic potential for tourism. Travels associated with pilgrimage were what initiated the development of tourism in these regions. There are several pilgrim centres in this region such as Kailas, Manasarovar, Amarnath and Hema Kund Sahib. These places have been attracting travellers for centuries.

The second phase of tourism development in the Himalayan Mountain region began in the 19th century when the British identified the area's favourable climate. The resort towns such as Shimla, Darjeeling, Shillong, Almora, Ranikhet, Mussoorie and Nainital are important tourist centres.

The third stage of modern tourism development began in the Himalayan region after the conquest of Mount Everest by Sherpa Tenzing Norgay and Edmond Hillary on 29th May 1953. Today the adventure tourism sector promoting Mountaineering, Paragliding, skiing etc. has developed significantly in this region.



The Himalaya is not an obstruction; instead, it is a door kept open for the world beyond. The Himalayas open door to the paths of new knowledge, sustenance and adaptation.



Extended Activities

1. Prepare an essay on 'Human life in the Northern Mountains'.
2. Mark the mountain ranges that are part of the Northern Mountains and incorporate the same in 'My Own Atlas'
3. Prepare a pictorial wall magazine on the occupation of people in the Northern Mountains.

2

In the Expansive Plain

Various types of landforms, such as lofty mountains, expansive plains, plateaus, scorching deserts and valleys are found on the surface of the Earth. They were formed over millions of years. In the previous chapter, you learned in detail about the Northern Mountains, one of the physiographical divisions of our country. Observe the map (Fig 2.1) given below. Don't you find a vast physical division that lies to the south of the Northern Mountains and to the north of the Peninsular Plateau? It is an extensive alluvial plain known by the name Indo-Gangetic- Brahmaputra Plain.

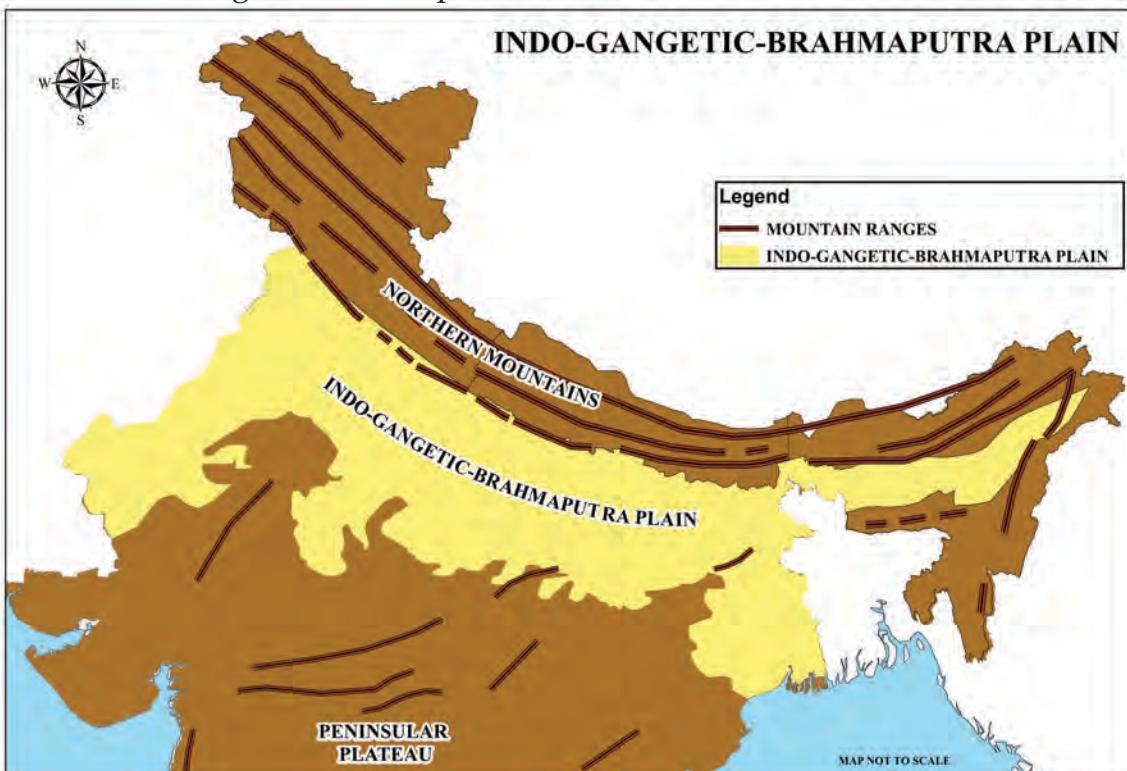


Fig 2.1

In the Expansive Plain

Let's have a glance at the formation of this physiographical division, which is also called the North Indian Plain.

Diverse landforms are formed on the surface of the Earth through the continuous processes driven by external forces, such as running water, wind, glaciers, and waves that operate on the Earth's surface. Therefore, these external forces are called geomorphic agents, and the processes that lead in the formation of landforms are called geomorphic processes. The sediments or rock materials formed through the disintegration of rocks by various physical, chemical, and biological processes are transported by these external forces or geomorphic agents from one place to another. These materials are then deposited conveniently in low lying regions. This process is called deposition. Now look at Fig 2.2.

Haven't you seen how the rainwater carries away loose rock materials from a higher region and deposits them in a lower region?

Rivulets originating from high altitudes form rills. Rills join together to form streams. Rivers develop through the merging of numerous such streams. Rivers originating from high altitudes transport sediments down the stream and deposit them in low-lying areas. Over time, the deposition of sediments by rivers creates numerous depositional landforms, including expansive alluvial plains.

Alluvium

Alluvium refers to debris, including silt, sand, gravel, etc., brought by rivers.

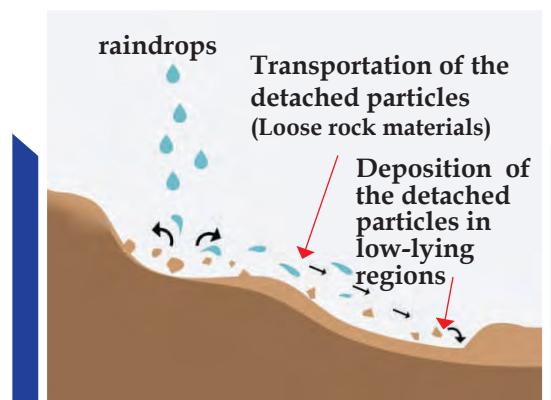
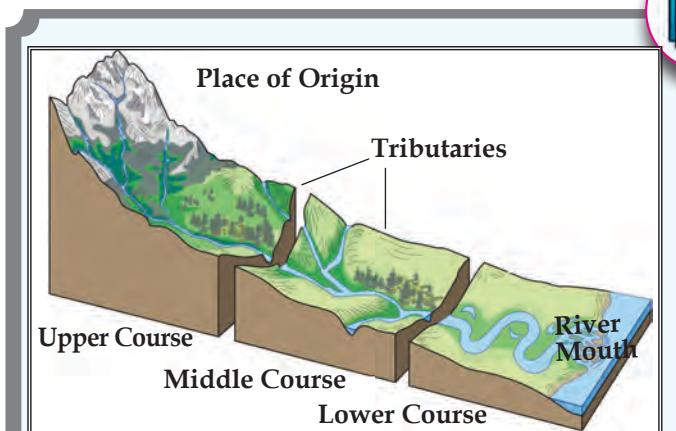


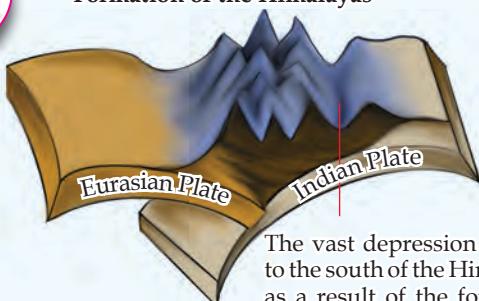
Fig 2.2



The place of origin of a river is called its source, and the place at which it discharges into the sea or another body of water is referred to as the river mouth.



Formation of the Himalayas



The vast depression formed to the south of the Himalayas as a result of the formation of the Himalayas.

The fertile Indo-Gangetic-Brahmaputra plain was also formed in the same way by the deposition of sediments carried by rivers. The sediments are deposited in a vast depression at the south of the Himalayas which was formed as a result of the formation of the Himalayas. The sediments, transported by rivers originating from both the

Himalayas and Peninsular India, were deposited in this expansive depression, which led to the formation of the plain. The continuous depositional processes over millions of years have contributed to the evolution of this fertile plain. The average depth of alluvial deposits in this plain ranges from 1000 metres to 2000 metres. Observe the graphical representation depicting the formation of the Indo-Gangetic-Brahmaputra Plain (Fig 2.3).

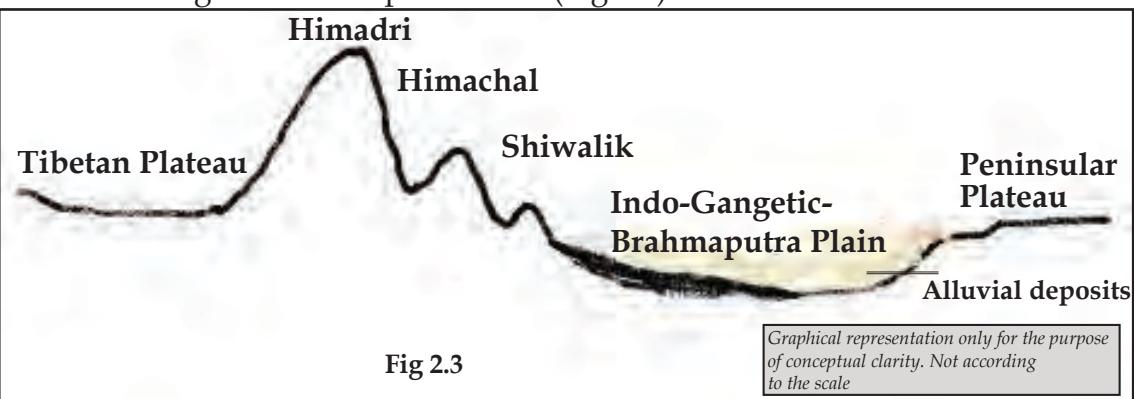


Fig 2.3



- Observe the map (Fig. 2.4) and list out the rivers that flow through the Indo-Gangetic-Brahmaputra Plain.
 - Ganga
 - Yamuna
 - Betwa
 -

- Rivers originating from the Himalayas are known as Himalayan rivers, while those originating from the peninsular plateaus are referred to as peninsular rivers. Categorize the rivers flowing through the Indo-Gangetic-Brahmaputra plain based on their place of origin as Himalayan rivers or Peninsular rivers, and list them accordingly. Use Fig. 2.1 and 2.4 for this purpose.

Himalayan Rivers	Peninsular Rivers
•	•

In the Expansive Plain

The Indo-Gangetic-Brahmaputra Plain, extending approximately over 3200 km from the mouth of River Indus to the mouth of River Ganga, is one of the largest alluvial plain in the world. It spreads over around 2400 km in India. The plain widens from east to west, with the width varying between 150 km and 300 km. This plain is bordered by the Shiwalik ranges in the north and the irregular edges of the Peninsular Plateau in the south.

The plain covers an area of approximately 7 lakh sq.km.



List the eastern and western boundaries of the North Indian Plains with the help of a physiographic map of India.

Features such as fertile soil, adequate water supply, favourable climate and flat topography make this region suitable for agriculture.

Geographically, this plain can be considered as a single physiographic unit. However, based on the river system, direction of flow of rivers and topographical features, the plain can be divided into four regional divisions.

Now, let's examine the characteristic features of each division.



Observe the map provided (Fig 2.4) and list the four regional divisions of the North Indian Plain.

1. Rajasthan Plain
2.
3.
4.

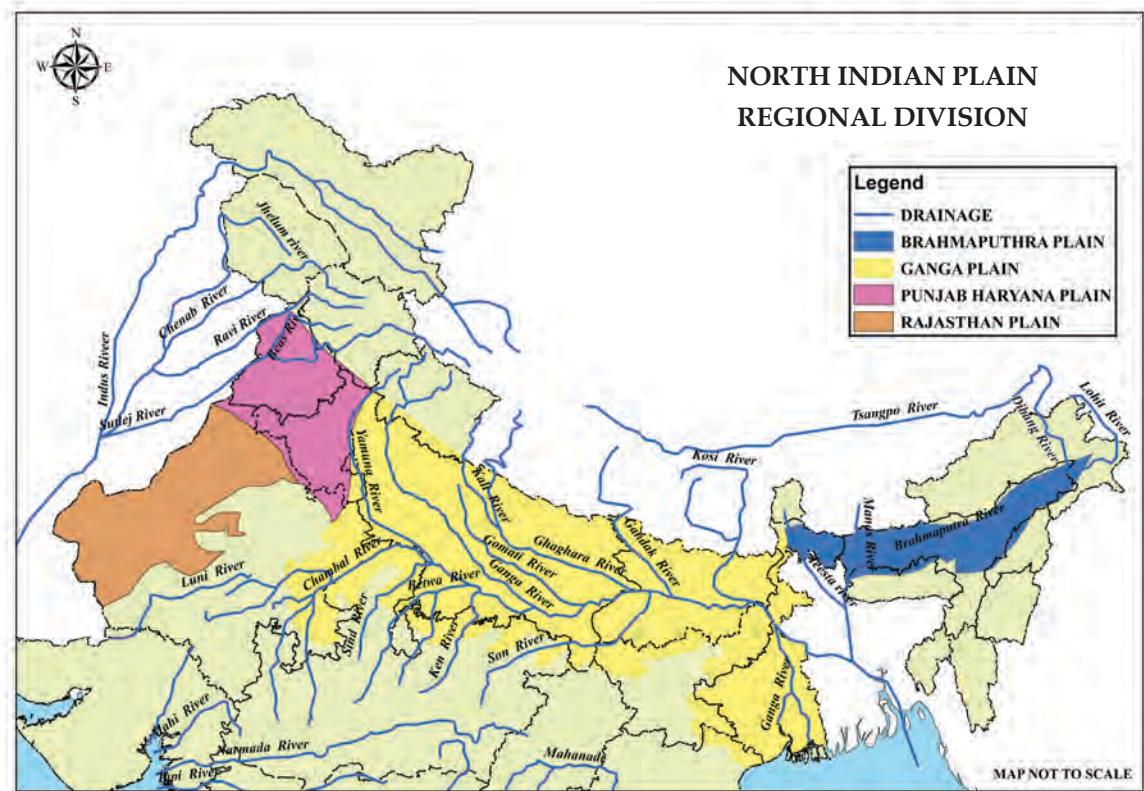


Fig 2.4
Rajasthan Plain

The Rajasthan Plain, which includes the Thar Desert, marks the westernmost end of the North Indian Plain. Two-thirds of the Thar Desert is situated in Rajasthan, while the remaining portion extends into the neighbouring states of Haryana, Punjab, and Gujarat. The Thar Desert is further divided into two significant regions: the actual desert area called Marusthali (the desert proper) and the semi-arid plain (semi desert region) known as Rajasthan Bagar. The geographical features of the Thar Desert are explained in detail in the following chapter.

The Rajasthan Plain is situated to the west of the Aravali Mountain range.



- ▶ Locate the Aravali Mountain range with the help of a physiographic map of India.
- ▶ Find out the influence of the Aravali Mountain range in the climate of the Rajasthan Plain.

A significant river in this plain is the Luni, which is non-perennial in nature. There are numerous salt lakes in Rajasthan Plain, and some of the major salt lakes are Sambhar, Didwana, and Sargol.

Punjab-Haryana Plain

You might have understood the main features of the Rajasthan Plain. Now, let's discuss the features of the Punjab-Haryana Plain. As you move from the Rajasthan Plain towards east and northeast, you can see the Northern Plains gradually transforming into a fertile plain. The Punjab-Haryana plain is situated to the east and northeast of the Rajasthan Plain. This plain is the western part of the North Indian Plain and extends upto the Yamuna River.

The eastern border of this plain is defined by River Yamuna.



Locate the significant landform to the west of the Punjab-Haryana Plain by referring to an atlas.

In India, this plain extends over the states of Punjab, Haryana, and Himachal Pradesh, covering an area of approximately 1.75 lakh sq.km. It gently slopes towards the west. The Punjab Plain, a significant part of this region, is primarily formed by the deposition of sediments carried by rivers such as Satluj, Jhelum, Chenab, Ravi and Beas. Punjab is etymologically known as the Land of Five Rivers. The Punjab-Haryana Plain is divided into five major doabs.

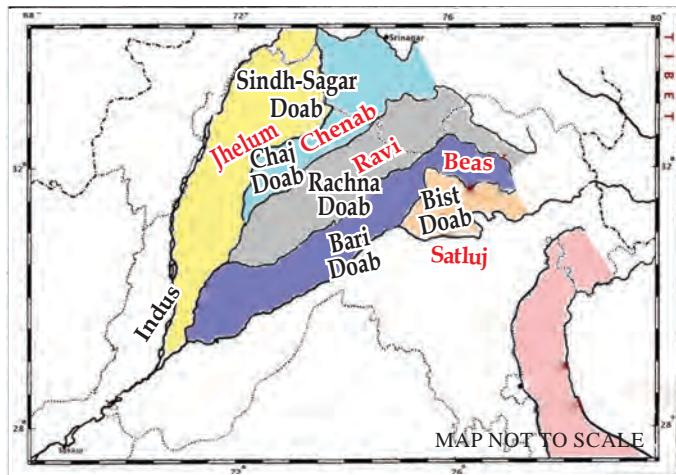


Fig 2.5

Do you know what a doab is? **A doab is a land lying between two rivers that join together later.** Observe Fig. 2.5 for reference.



Major Doabs

- Bist-Jalandhar Doab - between the rivers Beas and Satluj.
- Bari Doab - between the rivers Beas and Ravi.
- Rachna Doab - between the rivers Ravi and Chenab.
- Chaj Doab - between the rivers Chenab and Jhelum.
- Sindh-Sagar Doab - between the rivers Indus and Jhelum-Chenab.

The Ganga Plain

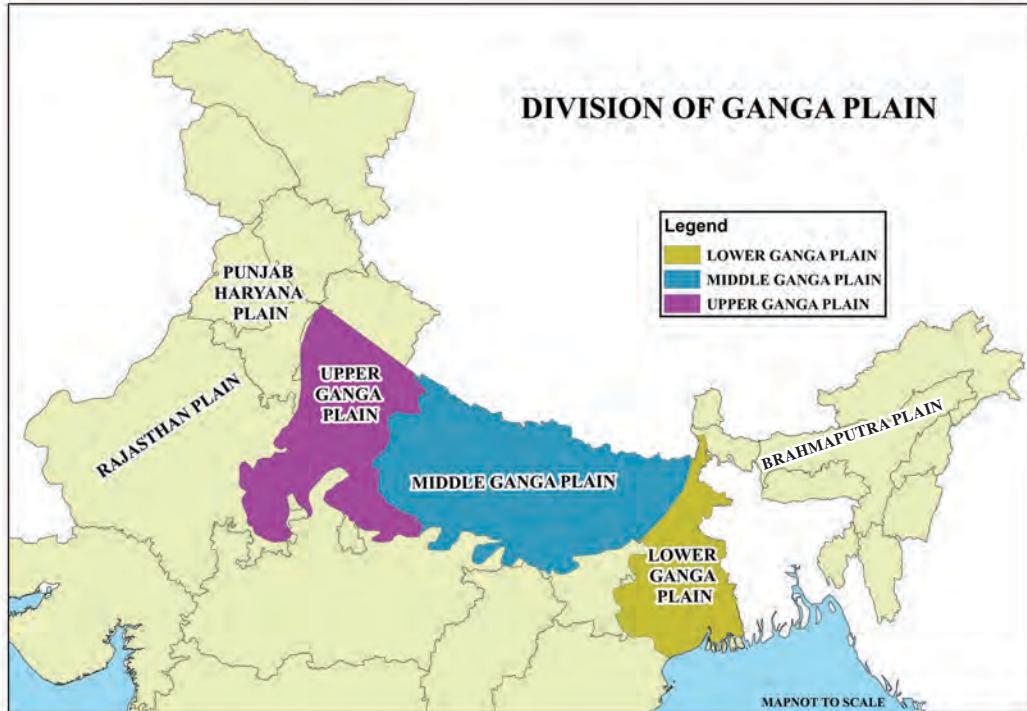
The division of the plain situated to the east of the Punjab - Haryana Plain is known as the Ganga plain. Observe the map (Fig 2.4). The Ganga Plain stretches from Bangladesh in the east to the Yamuna River in the west. This expansive plain covers the states of Uttarakhand, Uttar Pradesh, Haryana, Delhi, and parts of Jharkhand and West Bengal, spanning an area of approximately 3.75 lakh sq.km. This expansive plain was formed through the depositional processes by River Ganga and its tributaries. The average elevation of the Ganga Plain is

around 200 metres above mean sea level, and it exhibits a general slope towards the east and the southeast.



Based on geographical features, the Ganga Plain has been further divided into three regions. Observe the given map (Fig 2.6) and identify them.

► Upper Ganga Plain ► Middle Ganga Plain ► Lower Ganga Plain



Brahmaputra Plain

The Brahmaputra Plain, known by various names such as Brahmaputra Valley, Assam Valley, and Assam Plain, constitutes the easternmost part of the North Indian Plain. Stretching from the easternmost edge of Assam to the west of Dubri, near the border of Bangladesh, it spans approximately 720 km in length, with the width ranging from 60 to 70 km. The major portion of the Brahmaputra Plain is located in the state of Assam. Though the Brahmaputra Plain is commonly considered as the eastward extension of the North Indian Plain, geographically this plain stands distinct and separate from the rest of the North Indian Plain.

The Eastern Himalaya in the north, the Patkai-Naga Hills in the east, and the Garo-Khasi-Jaintia Hills and Mikir Hills in the south serve as its natural boundaries, separating the plain from the surrounding areas. The Lower Ganga Plain lies to the west of the Brahmaputra plain.



With the help of an atlas, identify and locate the Brahmaputra Plain in an outline map of India, and include it in My Own Atlas

The Brahmaputra Plain, spanning an area of approximately 56,275 sq.km, is formed through the depositional processes carried out by the Brahmaputra River and its tributaries. Teesta, Manas, Lohit and Dibang are some of the major tributaries of the Brahmaputra River.



Observe the map (Fig 2.4) and locate the major tributaries of the River Brahmaputra in the outline map of India. Include it in 'My Own Atlas'.

This plain is rich in alluvial fans. Let's explore what alluvial fans are. Observe Fig 2.7. When rivers enter a plain from mountainous regions, their velocity decreases abruptly. The sediments (alluvium) carried by the rivers get deposited in the form of fans. Such depositional landform features are referred to as alluvial fans.

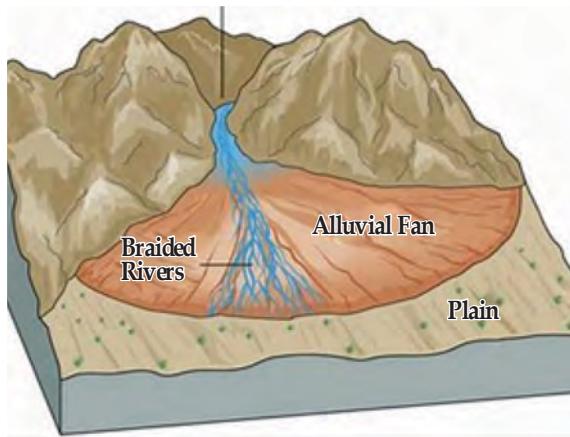


Fig 2.7
Alluvial Fan



Meanders and Ox-Bow Lakes

A river, flowing through comparatively gentle slopes, deviates when alluvial deposits within the river course create obstructions to the flow. This deviation leads to the formation of sinuous curves along the river course, creating meanders. Over a period of time, continuous erosion and deposition cause meanders to curve further. Subsequently, when the river takes a straighter course, such curved sections get detached from the main river, forming isolated water bodies. Such isolated water bodies are called ox-bow lakes.

Rivers that continue flowing through plains split into many channels. As the river's velocity decreases, it starts flowing creating curves in the river course or in a sinuous manner. This eventually leads to the formation of ox-bow lakes. Observe the given Fig 2.8 to understand the formation of ox-bow lakes.

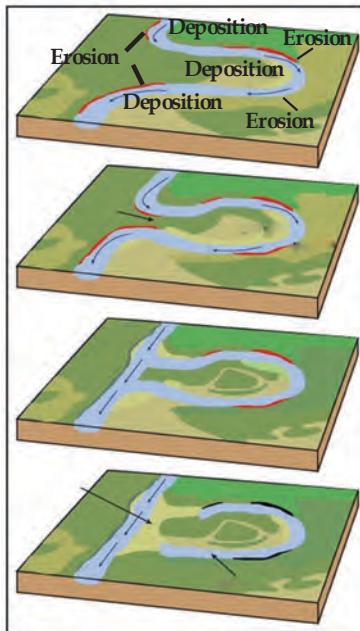


Fig 2.8
Formation of Ox-Bow Lakes



Fig 2.9
River Meandering



Fig 2.10
Ox-Bow lakes

A river thus flowing in a sinuous manner is called river meandering. Fig 2.9 illustrates a river meandering.



Prepare a digital album containing the pictures of river meandering and ox-bow lakes in different places of the world.

The North Indian Plain can be divided into three zones from north to south based on its geomorphic features.

- **Bhabar**
- **Tarai**
- **Alluvial plains**

Let's explore the characteristic features of each of these zones.

Bhabar is a narrow belt, approximately 8 to 10 km wide, running parallel to the Shiwalik mountain range at the break-up of the slope. It is situated to the south of the Shiwalik mountain range along its foothills. This zone of the plain is formed by the deposition of rocks and boulders brought by rivers flowing from the mountains. The rivers flowing through this region are not visible as they flow beneath the rocks and boulders. Look at Fig. 2.12.



Flood Plains

During floods, the alluvium brought by rivers gets deposited along the banks of a river, and plains are formed. The plains thus formed are flood plain. These areas are



ideal for agriculture and many well-known river valley civilizations in the world had flourished along such flood plains.

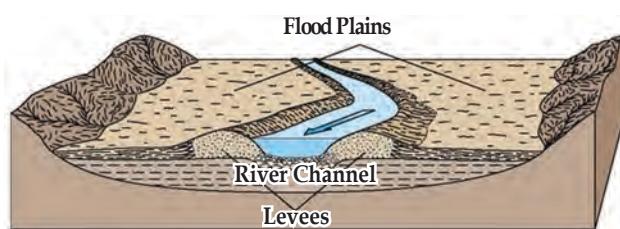


Fig 2.11



Fig 2.12
Bhabar Region



Fig 2.13
Tarai Region



Riverine Islands, Levees and Sandbars



When rivers flow through plains, their velocity and depth are comparatively low. Therefore, the sediments brought by rivers get deposited, forming islands in the river channels (Riverine Islands) and ridges along their sides (Levees). Linear landforms formed by sediments including sand, silt and gravel along river beds are called sandbars.

The Tarai is a marshy and swampy tract, approximately 10 to 20 km wide, running parallel to the Bhabar belt. The rivers that disappear in the Bhabar region re-emerge in this area. Observe Fig 2.13. The Tarai has a luxurious growth of natural vegetation and serves as a habitat for varied wildlife.

To the south of the Tarai, the belt consisting of older and newer alluvial deposits forms the Alluvial plain. The older alluvium deposits are called the Bhangar, and the newer ones are referred to as the Khadar. The major characteristic features of this region include depositional landforms such as riverine islands, sandbars, and deltas. Braided streams, meanders and ox-bow lakes are also prominent features of this area.

Observe the diagram (Fig 2.14) illustrating the side profile of the North Indian Plain.

In the Expansive Plain

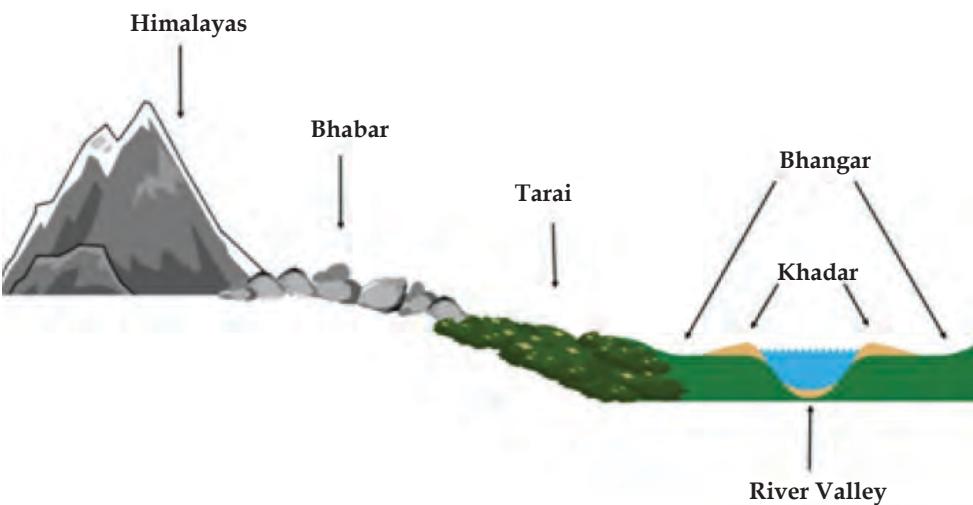


Fig 2.14

The side profile of the North Indian Plain

Graphical representation only for the purpose of conceptual clarity. Not according to the scale



Which one of the geographical divisions of the North Indian Plain is more suitable for agriculture?



Fig 2.15
A Deltaic Region



Deltas



When the river nears the river mouth through the plains, the velocity of the river decreases. Most rivers branch out into distributaries at this stage, where the volume of both water and sediments is high. The sediments brought by the river are deposited between these distributaries, forming almost triangular-shaped landforms called deltas. These features are named after the Greek alphabet Δ (Delta) due to their resemblance in shape.



Identify and list out the landforms which are formed due to the depositional process by rivers. Prepare a digital album containing the pictures of such depositional landform features.

You might have understood the physiographic features of the North Indian Plain by now. The climate experienced in a region is as significant as physiographic features in influencing characteristic features such as natural vegetation, wildlife, human life, soil and agricultural diversity in that particular region. Let's explore the main characteristic features of the climate experienced in the North Indian Plain.

Climate of the North Indian Plain

The Cold Weather Season

Usually, the cold weather season sets in by mid-November in North India. December and January are the coldest months in the North Indian Plain and excessive cold is experienced during this period. Do you know why there is excessive cold weather in the North Indian Plain?

- The major portion of the North Indian Plain is located far away from the moderating influence of the oceans, resulting in a continental climate.
- Snowfall in the nearby Himalayan ranges contributes to strong cold waves.
- Cold winds from West Asia cause frost, fog and cold waves in the western part of the North Indian Plain.
- The apparent movement of the sun from the northern hemisphere towards the southern hemisphere adds to the cold conditions.
-

During the cold weather season, the North Indian Plain receives slight rainfall.

The Hot Weather Season

The temperature increases in the North Indian Plain by March. The summer season in the North Indian Plain is experienced in the months of April, May, and June. Summer is extremely severe in North Indian Plain. By the month of May, the temperature rises up to 48 Degree Celsius in the western part of the North Indian Plain.

Hot, dry and oppressive wind blows from the desert region of Rajasthan to the Ganga Plain in the months of May and June. This wind, called 'Loo', increases the temperature considerably in the North Indian Plain.

Dust storms are very common in the evenings in Punjab, Haryana, Eastern Rajasthan, and Uttar Pradesh. As these storms bring light rain during summer, it provides some relief from the oppressive heat.



The North Indian Plain's distance from the ocean contributes to the excessive heat experienced during the summer in these regions. Why is it so?

The Southwest Monsoon Season

As a result of the rapid increase in temperature over the North Indian Plain by the month of March, a low-pressure area is developed over this region. This low-pressure area attracts the southwest monsoon winds to the Indian subcontinent. The southwest monsoon winds enter the Indian subcontinent as two branches.



By observing the given map (Fig 2.17), identify and list the two branches of the southwest monsoon winds. Try to understand their paths over the subcontinent.

- The Arabian branch of the southwest monsoon winds
-



Fig 2.17

The Bay of Bengal branch, entering the land through the Sundarbans delta region, gets bifurcated into two sub-branches. One branch moves eastward and enters the Brahmaputra Plain, causing widespread rains. The other branch, moving westward along the Ganga Plain, causes rainfall in West Bengal, Bihar, Uttar Pradesh, Delhi, and proceeds further westward. Over the Punjab Plain this branch joins the Arabian branch which is moving parallel to the Aravali Mountains and then brings rain to the foothills of the Western Himalayas.



The rainfall received in Rajasthan from the southwest monsoon is very scanty. Why?

In the Expansive Plain

The southwest monsoon season, experienced from June to September, is the main rainy season in the North Indian Plain.

The Northeast Monsoon Season

The low-pressure area that prevails over the North Indian Plain starts moving southward in response to the apparent movement of the sun towards the southern hemisphere. This season is named the retreating monsoon season. During this period, a high-pressure area develops over the North Indian Plain and consequently, the wind starts blowing from here to the Indian Ocean. As these moisture-less winds blow from the northeast, this season is called the northeast monsoon season.

The North Indian Plain generally experiences a dry climate during this season. Owing to the conditions of high temperature and atmospheric humidity, the weather becomes rather oppressive. This phenomenon is commonly known as the 'October heat'.



With the help of the provided map (Fig 2.18), identify the movement of winds that blow in the months of October and November. Locate them in an outline map of India and include it in 'My Own Atlas'.

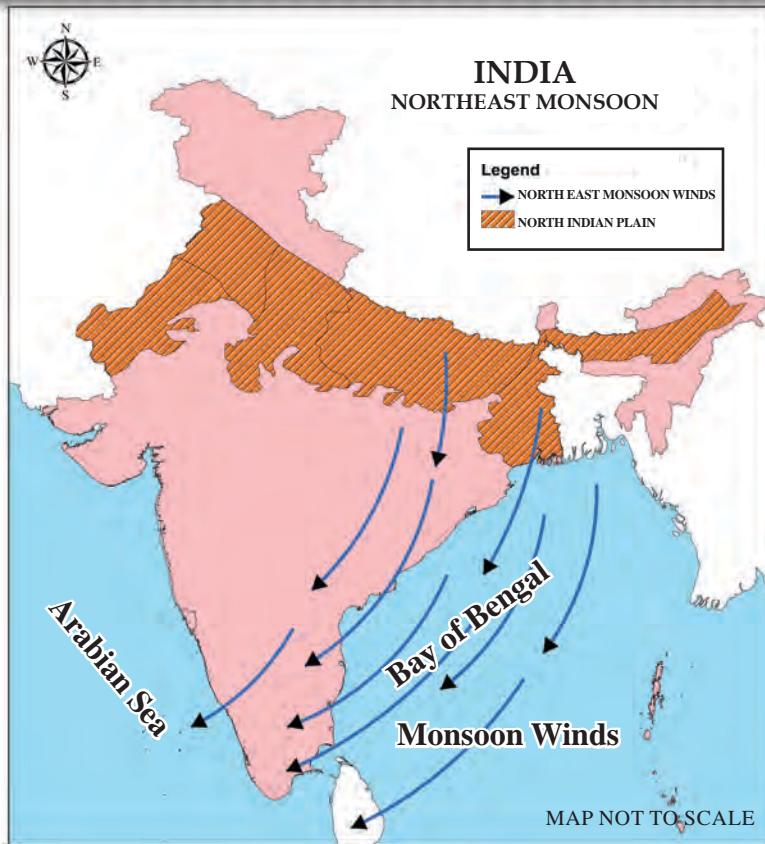


Fig 2.18

The Natural Vegetation of the North Indian Plain



Fig 2.19
The Tropical Moist Deciduous Forests

The natural vegetation found in the North Indian Plain also shows diversity. Topography, climate, and the nature of the soil are some of the major factors that cause this diversity in natural vegetation. The term 'natural vegetation' refers to a plant community that has been left undisturbed for a long period, enabling its individual species to fully adapt to the respective climate and soil conditions.

The prominent natural vegetation generally found in these plains are given below:

- The Tropical Deciduous Forests
- The Tropical Thorn Forests
- Swamp Forests

The tropical deciduous forests are further divided into two. They are the dry deciduous forests and the moist deciduous forests.

Dry deciduous forests are found in those regions where the annual rainfall ranges between 70 cm and 100 cm. In these forests, trees shed their leaves for approximately 6 to 8 weeks in the dry season when sufficient moisture is not available. The dry deciduous forests are found in the plains of Uttar Pradesh and Bihar.

The moist deciduous forests are found in areas with moderate rainfall, ranging from 100 cm to 200 cm per annum. They are mainly seen along the strip of Shiwalik range including Tarai and Bhabar and in certain parts of Odisha and West Bengal.

Teak, sal, shisham, mahua, amla and sandalwood are the main species of the tropical deciduous forests.

In the Expansive Plain

In the higher rainfall regions of the North Indian Plain, these forests exhibit a parkland landscape characterized by open stretches of teak and other trees interspersed with patches of grass. In the dry season, when the trees shed their leaves entirely, these forests are transformed into a vast grassland with bare trees.

The natural vegetation in the western part of the North Indian Plain is sparse due to low rainfall and intensive cattle rearing. Tropical thorn forests are prevalent in the semi-arid areas of southwest Punjab, Haryana, Rajasthan, and Uttar Pradesh. These forests consist of various grasses and shrubs, with important species such as babool, ber, wild date palm, khair, neem, khejri and palas. In certain regions Tussocky grass grows as undergrowth, reaching up to a height of 2 metres.

The swamp forests are the natural vegetation found in the vast saline expanses of Rajasthan, freshwater lakes, the freshwater marshes of the Ganga Plain, the flood plains of the Brahmaputra, and in the deltaic region of Sundarbans. The marshy and expansive deltaic region of Ganga Plain in West Bengal is Sundarbans. The natural vegetation found luxuriously in this region is mangroves. This region serves as a natural habitat for the Royal Bengal Tiger.



Fig 2.20
The Tropical Dry Deciduous Forests



Fig 2.21
The Tropical Thorn Forests



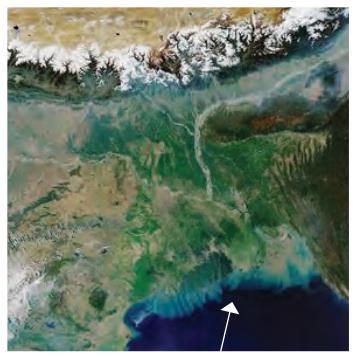
Fig 2.22
Swamp Forests

The roots of mangrove forests create a natural habitat for numerous aquatic species, including fishes.

They are the abode of varied species of birds. Sundri, a type of mangrove, stands out as one of the distinctive features of the Sundarbans delta.



- Locate the Sundarbans delta by referring to an atlas
- With the help of information technology, prepare a note with pictures on the characteristic features of mangrove forests.



Sundarbans Deltaic Region

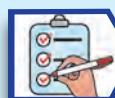


Satellite image of Sundarbans Delta



Sundri Mangrove

Fig 2.23



The provided map (Fig. 2.24) illustrates the distribution of natural vegetation in India. Identify and list the major natural vegetations in the North Indian Plain by analyzing the map.

- The tropical deciduous forests
- The tropical thorn forests
-

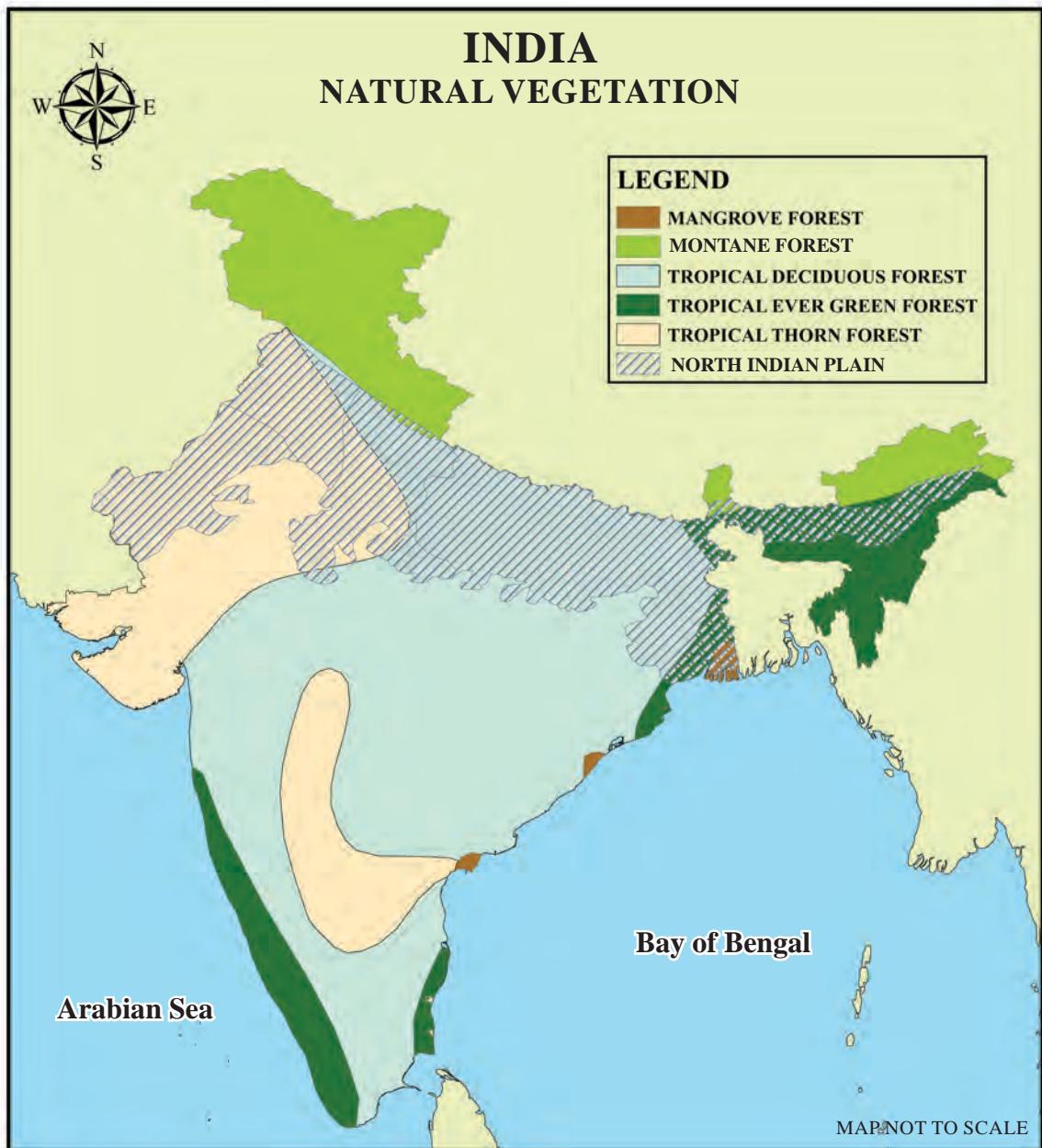


Fig 2.24

The Major Soil Types of the North Indian Plain

The soil which is widespread in the North Indian Plain is alluvial soil. The alluvial soils vary in nature from sandy loam to clay. Alluvial soil is found in limited areas of Rajasthan and extensively in the plains of Gujarat. There are two different types of alluvial soils developed in the Ganga Plain: Khadar and Bhangar. Write the characteristic features of these two types of soil by referring to the previous topics. The alluvial soil in the lower and middle Ganga plains and the Brahmaputra Valley are more loamy and clayey. Alluvial soil is well-suited for agriculture.

The red soil is found in the southern part of the Middle Ganga Plain. It is the presence of iron in the soil that gives a red colour to it. The soil found in the Sundarbans delta region is saline soil which is characterised by a higher presence of salt. Saline soil consists of sand and loam. Seawater intrusions into the deltas cause the formation of saline soils. In certain areas of the North Indian Plain, where there is intensive cultivation with excessive irrigation, the fertile alluvial soil has turned saline. Along the coastal regions of West Bengal, peat soil is also found.

Arid soil is the soil extensively found in the western parts of the North Indian Plain, including Rajasthan. It is generally sandy and saline in structure. As this soil lacks humus and moisture, irrigation support is required for the plants to grow.



Identify the distribution of different types of soils in the North Indian Plain by analyzing the provided map (Fig 2.25) and list them.

- ▶ Alluvial soil
- ▶ Red soil
- ▶

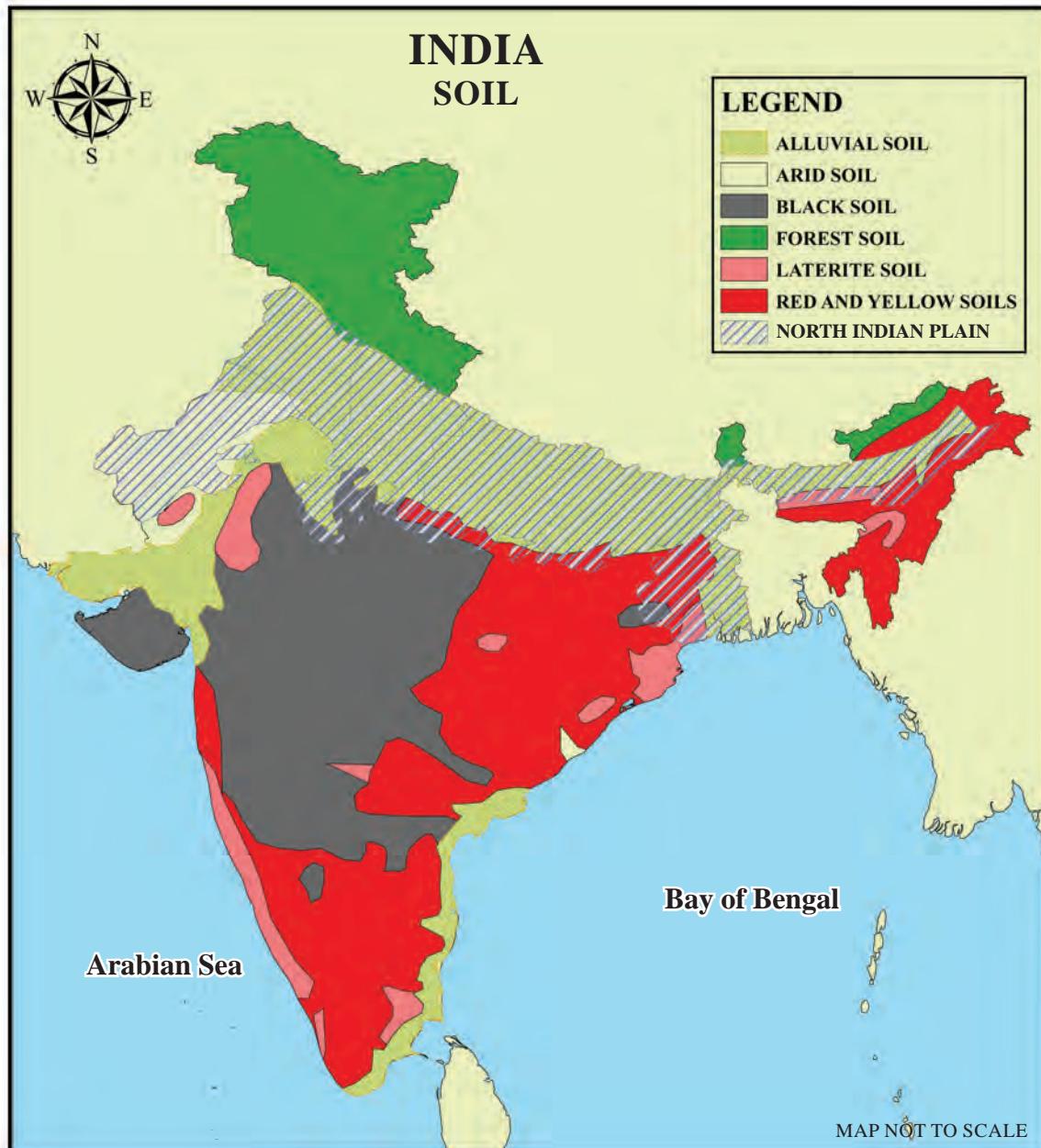


Fig 2.25

The Human Life

Fertile alluvial soil, flat topography, presence of perennial rivers and favourable climate are significant characteristic features of the North Indian Plain. Although this extensive plain accounts for less than one-fourth of the total area of our country, it is home to more than half of India's total population. The North

Indian Plain plays a very significant role in building India's economic system based on the agricultural sector. Wheat, rice, jute, and sugarcane are widely cultivated here. Extensive cultivation, supported by irrigation, has made this plain the granary of India. The entire plain, except the Thar Desert, has a well-developed network of roads and railways. This infrastructural development has facilitated large-scale industrialisation and urbanisation of the region.

Kharif, Rabi, and Zaid are the three



Fig 2.26
An Urban Area in the North Indian Plain



Fig 2.27
A Fertile Part of the North Indian Plain



Fig 2.28
Crop Cultivation in the North Indian Plain

different cropping seasons in the North Indian Plain during which varied crops are cultivated. Kharif is associated with the southwest monsoon season. Rabi begins with the onset of the cold season. Zaid, a short duration cropping season, starts after the cultivation of Rabi crops.



Observe the table given below. In the table, the major crops cultivated in three different cropping seasons in the North Indian Plain are listed. Try to understand the duration of each cropping season and the crops cultivated in each season. Prepare a note on it by adding additional informations with the help of information technology.

Cropping Seasons	Major Crops
Kharif (From June to September)	Tropical Crops- Rice, Cotton, Jute, Bajra, Tur etc.
Rabi (From October to March)	Temperate - Subtropical Crops – Wheat, Gram, Mustard, Barley etc.
Zaid (From April to June)	Vegetables, Fruits, Fodder etc.

We have discussed the major crops cultivated in the North Indian Plain. The crops mentioned above are not uniformly cultivated across the entire plain. There are regional diversities in the distribution of crops and their cropping patterns.

You might have acquired a general awareness about the location and the extension of the North Indian Plain, as well as the processes by which this extensive plain was formed. This physiographic division, characterised by its rich output and abundance of perennial rivers, plays a significant role in shaping the cultural diversity of India. Serving as the backbone of India's agriculture-based economy, this plain bears a decisive responsibility for our nation's food security. The facilities such as transportation and communication provided by the plain have been facilitating the spread and cultural diffusion of people for decades. The plural and mixed society that developed through this is the beauty and strength of our India.



Extended Activities

1. Project – 'The significant role played by The North Indian Plain in shaping human life in India'.
2. Conduct a seminar on the topic 'Climate and Crops'
3. How is the formation of the North Indian Plains associated with the formation of the Himalayas? Elucidate.
4. Draw the outline map of India and locate the divisions of the North Indian Plain. Exhibit it in your classroom.
5. Draw the outline map of India and locate the major physiographic divisions using different colours to distinguish them. Also, draw the rivers flowing through the North Indian Plain and display the map in your classroom.

3

Plateau where the Earth's History Slumbers

In the last two chapters you have familiarised with the major physiographic divisions in India as well as the physical and cultural diversities of Himalayan mountains and the North Indian Plain.

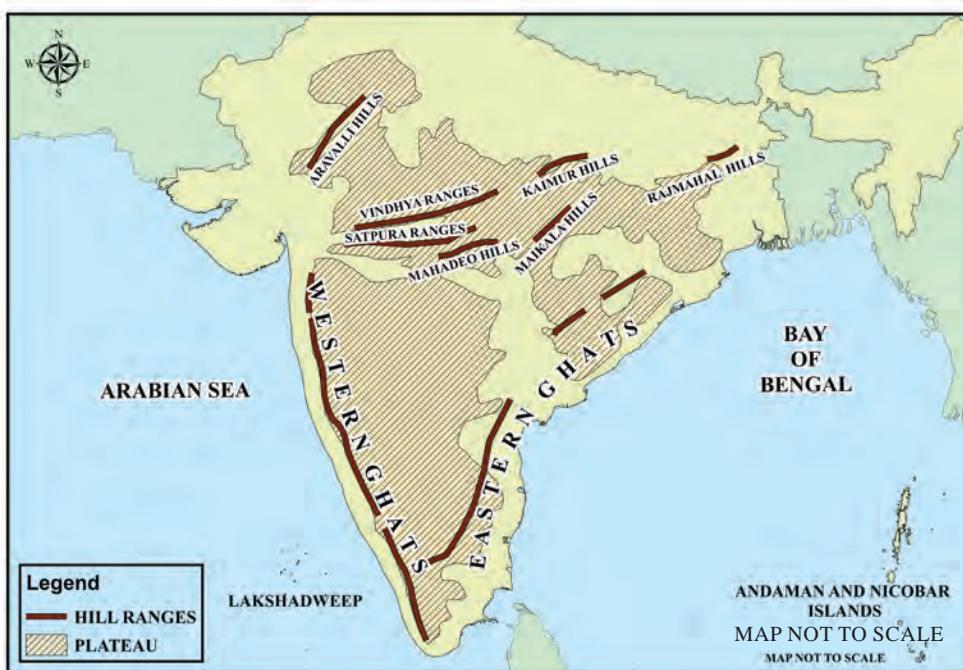


Fig 3.1



Observe the map (Fig 3.1). Identify the physiographic division marked in it.

It is estimated that this almost triangular-shaped physiographic unit occupying major share of the Peninsular India is at an average altitude of 600 to 900 metres above mean sea level. This unique physical division in terms of physical diversities such as extensive table lands with bordering mountain ranges and hills, comparatively shallow river valleys and diverse flora and fauna, is known as the Peninsular Plateau. The name is based on the fact that this division holds the major share of the Peninsular India. The Peninsular Plateau is one of the oldest landforms in the world. Let's have a detailed overview of the largest physical division of India, namely, the Peninsular Plateau, its physical diversities, resource base and their influence on the human life in India.

What is a Plateau?

Plateaus are the relatively flat and very extensive landforms situated at comparatively higher elevation from the surroundings. There are three types of plateaus based on their location:

- Intermontane plateaus
- Piedmont plateaus
- Continental plateaus

Try to get more information and examples regarding these plateaus.



With the help of the map given (Fig 3.1), identify the states which wholly or partly belong to the Peninsular Plateau. You can also make use of the political map of India.

- Madhya Pradesh
- Maharashtra
-
-



Fig 3.2

The Peninsular Plateau lies south of the North Indian Plain bordered by the Western Ghats in the west and the Eastern Ghats in the east. This landform extending over 16 lakh sq.km in area can be generally classified into two, based on its location.

- i. The Deccan Plateau
- ii. The Central Highlands

Deccan Plateau

Deccan Plateau is the extensive plateau to the south of the Satpura ranges between the Western Ghats and the Eastern Ghats. Satpura ranges, Maikala ranges and the Mahadeo Hills form the northern boundary of Deccan Plateau.

The term 'Deccan' has been derived from the Sanskrit word 'Dakshin', meaning 'the South'.

- ◆ Observe the location and the extent of the Deccan Plateau from the map (Fig 3.2).

The Deccan Plateau is made up of crystalline rocks, like basalt, granite and gneiss, formed by the lava flows millions of years ago.

The north western part of the Deccan Plateau is composed of lava rocks called basalt. This region is called as Deccan Trap.



Fig 3.3
Deccan Plateau: a view

The black soil formed by the weathering of basalt rocks is the peculiarity of this region. This soil is also known as Regur soil. Being highly fertile and with more water-retaining capacity, it protects the agricultural crops even in summer. This soil is also called as black cotton soil, as it is very useful for cotton cultivation.

Minerals like lime, iron, magnesium and aluminium are characteristics of regur soil. From the map (Fig. 3.1) you can

locate the Western Ghats and the Eastern Ghats which form the boundaries of the Deccan Plateau.

Plateau where the earth's history slumbers

You have learned about the Shayadri mountain ranges along the east of Kerala. This mountain range has a decisive influence on our climate, biodiversity and life of people (Fig 3.4).



Analyse the impact of Sahyadris on the life of the people of Kerala and prepare a note.



Fig 3.4
Sahyadris: a view

This mountain range, extending for about 1600 km from Kanyakumari in the south to the state of Gujarat in the north, is commonly known as Western Ghats. This range is the western edge of the Deccan Plateau. The height of this range gradually increases from north to south. Anamudi (2695 metres), the highest peak in Peninsular India, is located in Anamalai of the Western Ghats (Fig. 3.5).



In which state is Anamudi located?



Find the exact location of Anamudi and include it in My Own Atlas.



Fig 3.5
Anamudi

The Western Ghat ranges, known as Anamalai and Elamalai in Kerala, is called as the Nilgiris in Karnataka and Tamilnadu, and the Sahyadris, in Maharashtra. Dodabetta (2637 metres) in Nilgiris of Tamil Nadu is another major peak in this region.



Find out the major peaks in the Western Ghats.

Most of the peninsular rivers that have considerable influence on the culture and human life in Peninsular India originate from the Western Ghats ranges.

Look at the map (Fig. 3.2). Haven't you noticed the mountains like Javadi Hills, Palkondamalai, Nallamalai and Mahendragiri marked in this? These hill ranges which are comparatively lower in height than the Western Ghats form the Eastern Ghats. The total extent of the Eastern Ghats is about 800 km from the Mahanadi banks in Odisha to the Nilgiri ranges in Tamil Nadu. The east-flowing peninsular rivers cut across the Eastern Ghats, breaking the continuity of these ranges and flow over the eastern coastal plains. The Western Ghats and the Eastern Ghats join at the Nilgiri Hills.



- Which are the peninsular rivers cutting across the Eastern Ghats?
- Locate the major mountain ranges of the Eastern Ghats and include them in My Own Atlas.
- Locate the Nilgiri Hills and incorporate in My Own Atlas

Central Highlands

Central Highlands are the extensive plateau region that lies to the north of Satpura ranges. The Aravali mountains are on the western margin of this table land known as Malwa Plateau. The Aravali ranges is an example for old fold mountains or residual mountains worn down by long term erosion. Mount Abu, a major hill station, is in Aravali ranges. Mount Abu is also the highest peak in Malwa Plateau.



- Locate Mount Abu and incorporate it in My Own Atlas.
- Which is the tributary flowing directly to River Ganga from the Central Highlands? Find out with the help of a map.
- Find out the tributaries of River Yamuna originating from the Central Highlands.

Plateau where the earth's history slumbers

The plateau region along the eastern part of the Central Highlands is the Chota Nagpur Plateau. This plateau, situated at the south of Rajmahal Hills is the richest store house of minerals.

Metallic minerals such as iron ore, bauxite, manganese and copper and non - metallic minerals such as lime stone and coal make this region mineral rich. The major economic activities in this region are mining and mineral-based industries.



Locate the Chota Nagpur Plateau and incorporate it in My Own Atlas.

Climatic Diversity in Peninsular Plateau

Peninsular Plateau generally experiences tropical monsoon climate. But there is considerable spatio-temporal variation in temperature and rainfall. Have a look at the major factors influencing the climate of Peninsular Plateau.

- Tropical location
- Peculiar shape of the Peninsula
- Distance from the ocean
- Orientation of mountain ranges
- Direction of Monsoon winds

The Nilgiris



The mountain ranges along the meeting place of Tamil Nadu, Karnataka and Kerala are known as the Nilgiri Hills. Hill stations such as Ooty, Kotagiri and Coonor are the main attractions of this region belonging to the Western Ghats. Ooty (Udhagamandalam), known as the Queen of Hills, is one of the major hill stations in South India. Beautiful and extensive meadows, temperate vegetation, cool and pleasant climate, tea plantations, commercial vegetable farming and pollution-free environment make the Nilgiris more attractive. The Nilgiris, with its rich biodiversity, is the first Biosphere Reserve in India.



Plateau Outside the Peninsula!!

Yes, it has been ascertained that the regions composed of metamorphic rocks, such as marble, slate and gneiss, at Jaisalmer in Rajasthan are part of the Peninsular Plateau. Studies also reveal that the Meghalaya Plateau region was originally part of the Peninsular Plateau which was later separated by geomorphic processes. The rock outcrops along the Kachchh and Kathiawar regions in Gujarat have also been found to a part of Peninsular Plateau.

Barring the mountain region, the average summer temperature in the Peninsular Plateau is more than 30 Degree Celsius. Temperature at the Deccan Plateau generally touches 38 Degree Celsius in March. Generally low temperature prevails at higher elevations in the Western Ghats.

The diurnal range of temperature is very high along the interiors of the plateau due to the considerable fall in the night temperature.

Diurnal range of temperature is the difference between the maximum temperature and minimum temperature recorded at a particular place in a day.



Cool climate prevails over the places such as Ooty, Kodaikanal and Wayanad in spite of being located at the tropical region. Why?



Try to understand the daily temperature characteristics of places like Hyderabad, Nagpur, Bengaluru, Mysuru etc.

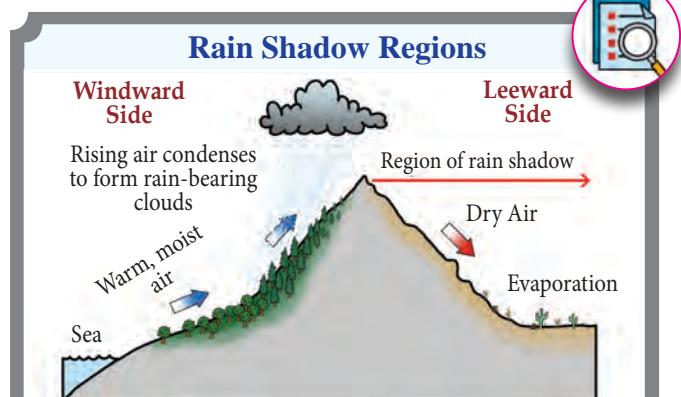
Rainfall is moderate or scanty throughout the Peninsular Plateau except the western slopes of the Western Ghats. During the southwest monsoon season the moisture - laden winds, raised and condensed along the western slopes of the Western Ghats cause heavy rainfall along the windward side. The west coast and the western slopes of the Western Ghats receive 250 to 400 cm rainfall during this period. The winds descending along the eastern slopes of the Western Ghats being dry, the plateau regions situated close to the eastern slopes receive very less amount of rainfall (less than 50cm). Such regions are termed as rain shadow regions.



What is the reason for the very scanty of rainfall in the interior parts of Tamil Nadu and Karnataka during southwest monsoon?

The southwest monsoon winds reaching the Maharashtra coast enter the peninsula through Narmada and Tapti river basins and cause moderate amount of rainfall throughout Central India. Chota Nagpur Plateau also receives a small amount of rainfall during this period.

Peninsular Plateau generally experiences dry climate during the northeast monsoon or retreating monsoon season. Though the low pressure whirls developed over the Bay of Bengal causes heavy showers along the east coast, especially Tamil Nadu and Andhra Pradesh, the plateau remains unaffected.



Moisture-laden winds from the sea rise along the windward sides of mountains. The air rising in this manner condenses to form rain-bearing clouds and causes heavy rainfall along the windward sides. But the leeward sides generally remain rainless as the descending air along these slopes is dry. Such regions are called as rain shadow regions.

Peninsular Rivers

A cross section of the Peninsular Plateau is represented in the diagram (Fig. 3.6).

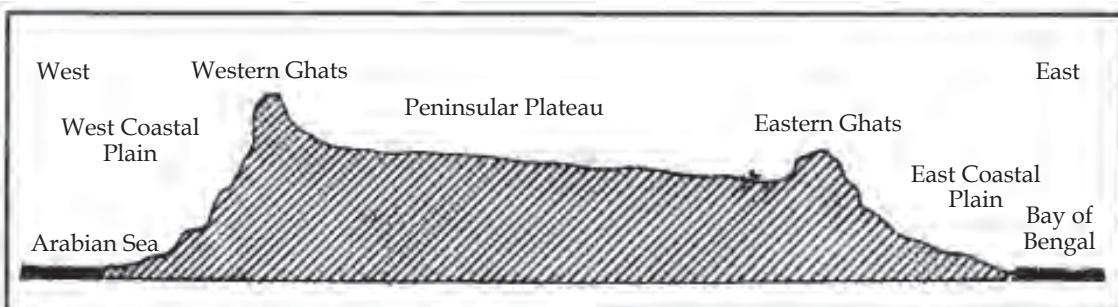


Fig 3.6

This representation is only for the purpose of conceptual clarity. Not according to scale.

Haven't you noticed that the general slope of the Peninsular Plateau is from west to east? The highest part in this plateau is the Western Ghats. The Western Ghats is the major water divide in Peninsular India. The Western Ghats, the mountain ranges of the Central Highlands and the Aravali ranges extending up to the Delhi ridges, divides the peninsular drainage into three:

- The peninsular rivers flowing eastwards into the Bay of Bengal
- The Peninsular rivers flowing westwards into the Arabian Sea.
- Rivers that flow northwards to join Yamuna and Ganga.

East-flowing Peninsular Rivers

Most of the east-flowing peninsular rivers originate from the Western Ghats.



Identify the major east-flowing peninsular rivers and incorporate in My Own Atlas.

Catchment Area: The defined area from where the water flows into a river is termed as the catchment area of the river.

Drainage Basin: The area formed by a river and its tributaries is called a Drainage Basin.

Water Divide: The boundary line separating two watersheds or drainage basins is called Water Divide.

The rivers Mahanadi, Godavari, Krishna and Kaveri and their tributaries cut across the Peninsular Plateau and flows eastwards through the eastern coastal plain to join the Bay of Bengal.

Familiarise with the important facts related to these rivers from the given table (Table 3.1).

River	Source	Major Tributaries	States sharing the River Basin
Mahanadi	Sihawa in Raipur (Chattisgarh)	Ib, Tel	Chhattisgarh, Odisha, Madhya Pradesh
Godavari	Nashik in Maharashtra	Pranhita, Indravati, Sabari	Maharashtra, Madhya Pradesh, Andhra Pradesh
Krishna	Mahabaleshwar in Maharashtra	Tungabhadra, Bhima, Koyna	Maharashtra, Karnataka, Andhra Pradesh
Kaveri	Brahmagiri Hills in Karnataka	Kabani, Bhavani, Amaravati	Karnataka, Tamilnadu, Kerala

Table 3.1

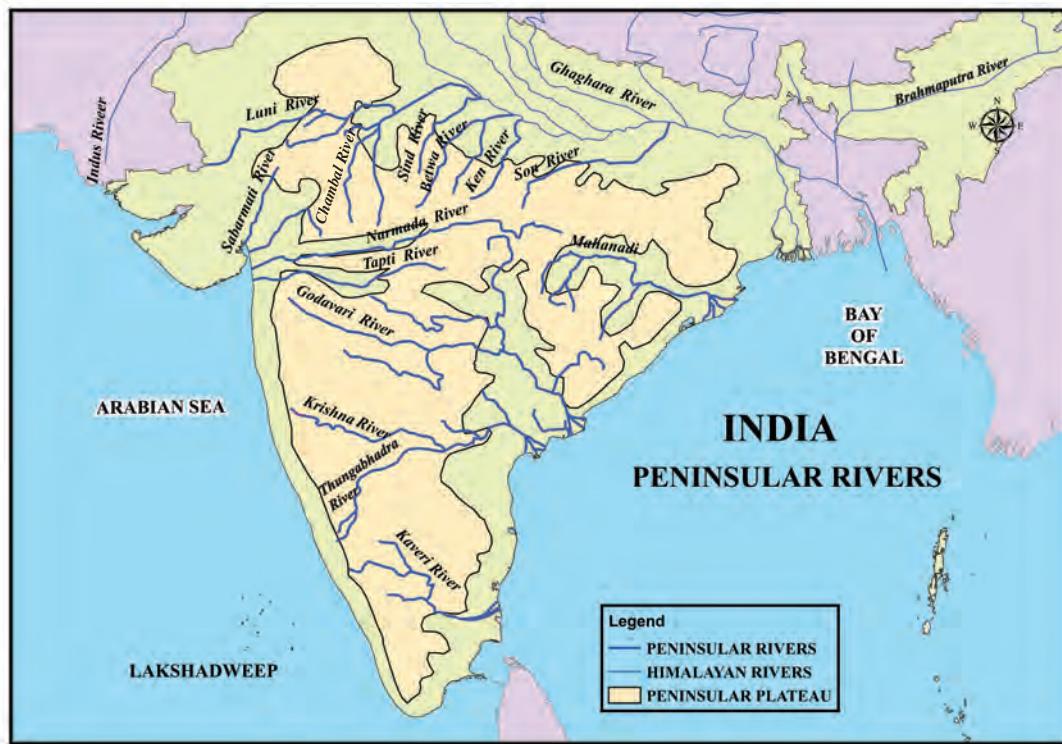


Fig 3.7



Kaveri Dispute

There has been a long standing dispute existing between the South Indian states of Karnataka, and Tamil Nadu over the sharing of Kaveri river water. The state of Karnataka argued that the pre-Independence agreement (1924) on the sharing of river water should be declared invalid as it was more favourable to the Madras Presidency. According to Tamil Nadu, changes in the earlier agreement would affect millions of farmers in Tamil Nadu. The Central Government appointed a tribunal in 1990 to study the case. In the final verdict issued in 2007, an agreement was arrived at regarding the sharing of Kaveri water. Accordingly, it was decided to give 419 TMC water to Tamil Nadu, 270 TMC water to Karnataka, 30 TMC water to Kerala and 7 TMC water to Puducherry Union Territory.(1TMC=1000 million cubic feet). The dispute is not settled yet. The reconsideration petitions of the states are still pending before the court.

Godavari is the largest peninsular river. This river having 1465 km length and with 3.13 lakh sq. km catchment area, is also called Dakshin Ganga. Rivers, Krishna and Kaveri are the second and the third largest peninsular rivers.



Find out the tributaries of River Kaveri originating from Kerala.

Peninsular rivers are more seasonal in their flow. The water flow decreases during summer and overflows during monsoons.

Perennial Kaveri

As compared to other peninsular rivers, the water flow in River Kaveri does not experience any significant decrease in flow throughout the year. This is due to the fact that the catchment area receives southwest monsoon rains during summer and northeast monsoon rains in winter.

West-flowing Peninsular Rivers

Most of the peninsular rivers, except Narmada and Tapti, originate from the western slopes of the Western Ghats and swiftly flow into the Arabian Sea through the western coastal plains. Rivers Narmada and Tapti originate from the uplands in Central Highlands.

Steep valleys carved in marble rocks, Duandar Waterfalls near Jabalpur and Sardar Sarovar Multipurpose River Valley Project make Narmada stand tall above others. Familiarise with the important facts related to the rivers Narmada and Tapti from Table 3.2 given below.



Fig 3.8
Duandar Waterfalls

River	Source	Major Tributaries	States holding the river basin
Narmada	Amarkantak (Madhya Pradesh)	Hiran, Banjar	Madhya Pradesh, Maharashtra, Gujarat
Tapti	Multai (Madhya Pradesh)	Purna, Girna	Madhya Pradesh, Maharashtra, Gujarat

Table 3.2



Find out the major rivers that originate from the Western Ghats and flow to Arabian Sea through Kerala.



Narmada Bachao Andolan

Narmada Bachao Andolan was a strong public resistance against the construction of large reservoirs on River Narmada. This was ignited by the concern that a number of large and small dams including the Sardar Sarovar and Narmada would cause harm to the environment and lead to the displacement of people. This agitation was jointly led by the local tribal communities, farmers, environmentalists and human rights activists. The abeyance of construction activities of this project from 1994 to 1999, and the withdrawal of investors including the World Bank and also a rethinking on this project may be considered as the outcome of this movement.

Peninsular Rivers joining River Ganga

In the previous chapter, you learned about some rivers originating from the Malwa Plateau flowing northward either to join River Yamuna or directly to River Ganga.

- Chambal
-

These rivers are termed as peninsular tributaries of River Ganga.

Chambal Ravines

The gullies that are formed by the continuous erosion by Chambal River and its tributaries are a distinctive topographical feature of the region. Such badland topographical features along the northern slopes of Malwa Plateau are known as Ravines.



Fig 3.9
Ravines



Peninsular rivers are, in general, not navigable. Why?

Peninsular rivers are being harnessed in many ways to promote irrigation, power generation and tourism. Let's familiarise with a few multi-purpose river valley projects in the Peninsular India. Observe Table 3.3 given below.

River Valley Project	River	State
Hirakud	Mahanadi	Odisha
Thungabhadra (Tributary of Krishna)	Thungabhadra	Karnataka
Sardar Sarovar	Narmada	Gujarat
Krishna Raja Sagar	Kaveri	Karnataka
Nizam Sagar	Godavari	Andhra Pradesh

Table 3.3

What are Multipurpose River Valley Projects?

Multipurpose River Valley projects are projects that construct dams across a river for serving different purposes simultaneously. Flood control, irrigation, hydel-power generation, inland water transport, fishing and tourism are some of the main objectives of such projects.



Fig 3.10
Sardar Sarovar Dam



- Collect more information about multipurpose river valley projects.
- Find out such river valley projects in Peninsular India.

Natural Vegetation in the Peninsular Plateau

The natural vegetation of a region is in accordance with the physiography and climate of that region. Let's see what are the major natural vegetation types in the Peninsular plateau.

◆ Tropical Deciduous Forests

These are the most widespread natural forests in the Peninsular Plateau. Such vegetation is generally confined to the regions receiving 70 to 200 cm of annual rainfall. Based on the availability of rainfall, these are of two types:

- Moist deciduous forests
- Dry deciduous forests

Moist deciduous forests are found in areas receiving 100 to 200 cm annual rainfall. The type of vegetation commonly found along the eastern slopes of the Western Ghats are of this type. This type of vegetation is also seen along the hills of Madhya Pradesh and Chattisgarh as well as in the Chota Nagpur. Teak, Sal, Shisham, Mouva, Sandalwood etc. are common in these forests.

Dry deciduous forests are confined to the other parts of Peninsular Plateau receiving 70 to 100 cm of annual rainfall. It gives way to thorn forests and shrubs as we move closer to the areas with scanty rainfall. With the onset of droughts, these trees completely shed their leaves and the forests turn to grasslands having leafless trees. Teak, rosewood, axle wood, bamboos etc are common here.

Tropical Thorn Forests

This type of vegetation is common along the regions with high temperature and an annual rainfall below 75 cm. Short trees are seen here and there. Acacia, euphorbia, date palms, a few varieties of grass etc are the common ones. The semi-arid regions of Maharashtra and Karnataka to the east of Western Ghats, and the dry regions of Andhra Pradesh, Telangana and Tamil Nadu have this type of vegetation.

Southern Montane Forests

The vegetation along the higher reaches of the plateau such as the Western Ghats, Vindhya ranges, the Nilgiri Hills etc are generally included in the category of southern montane forests. The places situated above 1500 metres have temperate vegetation, below which sub-tropical vegetation is seen.

The sub tropical vegetation along the Nilgiris, Palani, Anamalai etc are called as Shola forests.

Soil Types in Peninsular Plateau

Most of the soil types found in the Peninsular Plateau are in-situ soils. The soils found here can be classified as black soil, red soil, laterite soil and mountain forest soils.

In-situ Soils and Transported Soils

In-situ soils are the soils that rest over the place at which they are formed.
Example: Black soil

The soils carried away by rivers, wind etc. and deposited somewhere else are called Transported soils.

Example: Alluvial soil

Black Soil

You know that the northwestern part of the Deccan Plateau is a vast lava plateau. Black soils are formed as a result of long-term weathering of lava rocks called basalt in this region.

Black soils are found mainly in the states of Maharashtra and Madhya Pradesh and partly in Karnataka, Telangana, Andhra Pradesh, Gujarat and Tamil Nadu. What are the other names by which these soils are known?

Red Soil

Red soil is formed by the weathering of very old crystalline metamorphic rocks of the Peninsular Plateau. Even though it is called as red soil in general, in some places, it also appears in brown, grey and yellow colours. The red colour is mainly due to the presence of considerable quantity of iron in this soil.

Laterite Soil

Laterite soil is formed as a result of leaching of minerals such as silica and lime from the soil at places experiencing alternating periods of heavy rain and drought. In the Peninsular Plateau, laterite soil is mainly found along the Western Ghats, the Eastern Ghats, Rajmahal Hills, Vindhya and Satpura mountains and Malwa Plateau. Being less fertile, this soil is generally not arable, but through fertilisation it is used extensively for plantation crops such as tea, coffee, rubber and arecanut.



Fig 3.11
Black Soil



Fig 3.12
Red Soil



Fig 3.13
Laterite Soil

Mountain Soil

In South India, mountain soil is seen along the Western and the Eastern Ghats. This soil is suitable for the plantation crops, especially tea, coffee, spices and tropical fruits in Karnataka, Tamil Nadu and Kerala.

Other than the above discussed soils, in accordance with the physiography and climate, there is a wide variety of regional soil types in Peninsular Plateau.

Agriculture in Peninsular Plateau

Even though the plateau regions are generally not suitable for agriculture when compared to the plains, crops such as rice, wheat, cotton, sugarcane and tobacco as well as plantation crops such as tea and coffee are being cultivated in different parts of the Peninsular Plateau. Agriculture is possible only in selected regions due to the constraints such as undulating topography, fluvial eroded surface soil, steep slopes, thin top soil, exposed rocks and a few scattered hills.

Plantation crops dominate in the Western Ghats. Tea and coffee plantations are quite common in the Nilgiris. But paddy is also being cultivated here by making hill terraces.



Fig 3.14
Coffee Plantation

Coffee: Karnataka is the leading producer of coffee in India. The state owns about 59 percentage of the coffee plantations and 71 percentage of coffee production in India. Kerala, with 22 percentage of production, stands second. Rich varieties of coffee such as Arabica and Robusta are mainly cultivated.

Tea: The tea plantations in the plateau are mainly confined to the Nilgiri Hills and the Western Ghats spread over Tamil Nadu, Karnataka and Kerala. The region stands out with 44 percentage of the plantations and 25 percentage of the total production in India. Being labour-intensive, the sector provides a lot of employment opportunities, both in plantations and in the allied industries.



Fig 3.15
Tea Plantation



The Seven Coffee Seeds that made History

Coffee cultivation in India was started by the latter half of 17th century. It was Bababudan, a Muslim priest, who brought seven coffee seeds from Arabia and started coffee cultivation in the hill ranges of Chikmagaluru in Karnataka. This region, which is the birth place of Indian coffee, is known as Bababudan Hills. Coffee plantations and coffee industries developed further since the British rule.



Sugarcane: The most favourable condition for sugarcane cultivation persists in the Deccan Plateau region even though the Northern Plains dominates in the area of cultivation. Let's see the favourable conditions here.

- Black lava soil in the Deccan Plateau
- Tropical climate and long crushing season
- Comparatively high sucrose content in the tropical variety of sugarcane



Fig 3.16
Sugarcane Plantation



Which is the largest sugarcane producing state in India?



Fig 3.17
Cotton Plantation

Cotton: Even though cotton is a Kharif crop, the cotton cultivation in Peninsular India begins by the month of October and is harvested from January to May. This is because it is essential to have seven frost free months in the early growing period. Cotton requires 21 Degree Celsius to 30 Degree Celsius of temperature and 50 to 100 cm annual rainfall. But cotton is also cultivated in low rainfall areas with the help of irrigation. The black

soil in the Deccan-Malwa Plateau regions is the most suited for cotton cultivation. Gujarat is the leading producer in India, followed by Maharashtra.

Storehouse of Minerals

Mineral resources in India are largely concentrated in the crystalline rock layers and the lower hilly tracts of Peninsular Plateau. Chota Nagpur Plateau is termed as the heartland of minerals. The Chotanagpur-Odisha Plateau which spreads over Jharkhand, West Bengal and Odisha, is the richest mineral belt in India. This region is rich in metallic and non-metallic minerals such as coal, iron ore, manganese, mica, bauxite and copper. Based on the availability of mineral resources, the Peninsular Plateau can be divided as different mineral zones:



Fig 3.18
Iron Ore Mine



Fig 3.19
Coal Mine

1. Northeastern Plateau Region

The Chotanagpur- Odisha plateau region is the largest mineral belt. This region spreads over Jharkhand, West Bengal and Odisha. Minerals such as coal, iron ore, manganese, mica, bauxite and copper are being mined in this region.

2. Central Region

Minerals such as manganese, bauxite, limestone, marble, coal, mica, iron ore and graphite are largely obtained from the central region which spreads over Chattisgarh, Madhya Pradesh, Telangana, Andhra Pradesh and Maharashtra.

3. Southern Region

Minerals such as iron ore, bauxite and lignite are seen along this region which spreads over the Karnataka Plateau and the adjoining parts of Tamil Nadu.

4. Southwestern Region

Iron ore, clay etc. are largely obtained from this region which spreads over western Karnataka and Goa.

5. Northwestern Region

The Aravali range in Rajasthan and the adjoining parts of Gujarat are rich in copper, lead, zinc, uranium and mica.



Find out the location of major mining regions from the given map (Fig. 3.20). List out the major minerals found in each state.

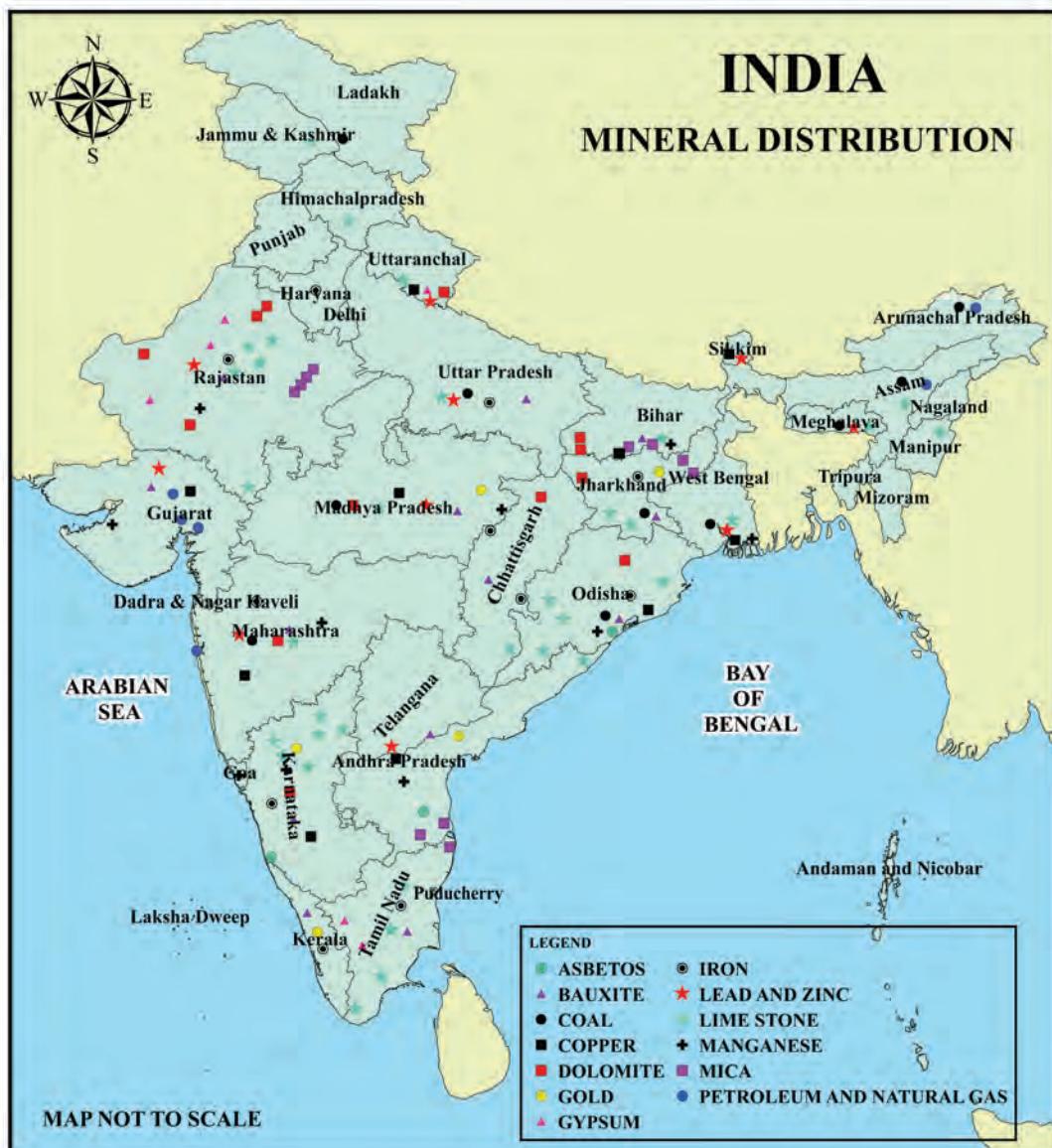


Fig 3.20



Prepare a map showing the distribution of major minerals and incorporate in My Own Atlas.

Life in Peninsular Plateau

The Peninsular Plateau is moderately populated. In the earlier stages, human settlements in the Peninsular Plateau were limited due to non-arable topography and continental climate. Later, with the beginning of mining activities, development of road-rail network and emergence of mineral-based industries, people were attracted to the plateau. Scope of commercial agriculture based on irrigation and technological possibilities also led to an increase in population here.

Gradually the state capitals as well as the mining and industrial centres grew into larger urban centres.

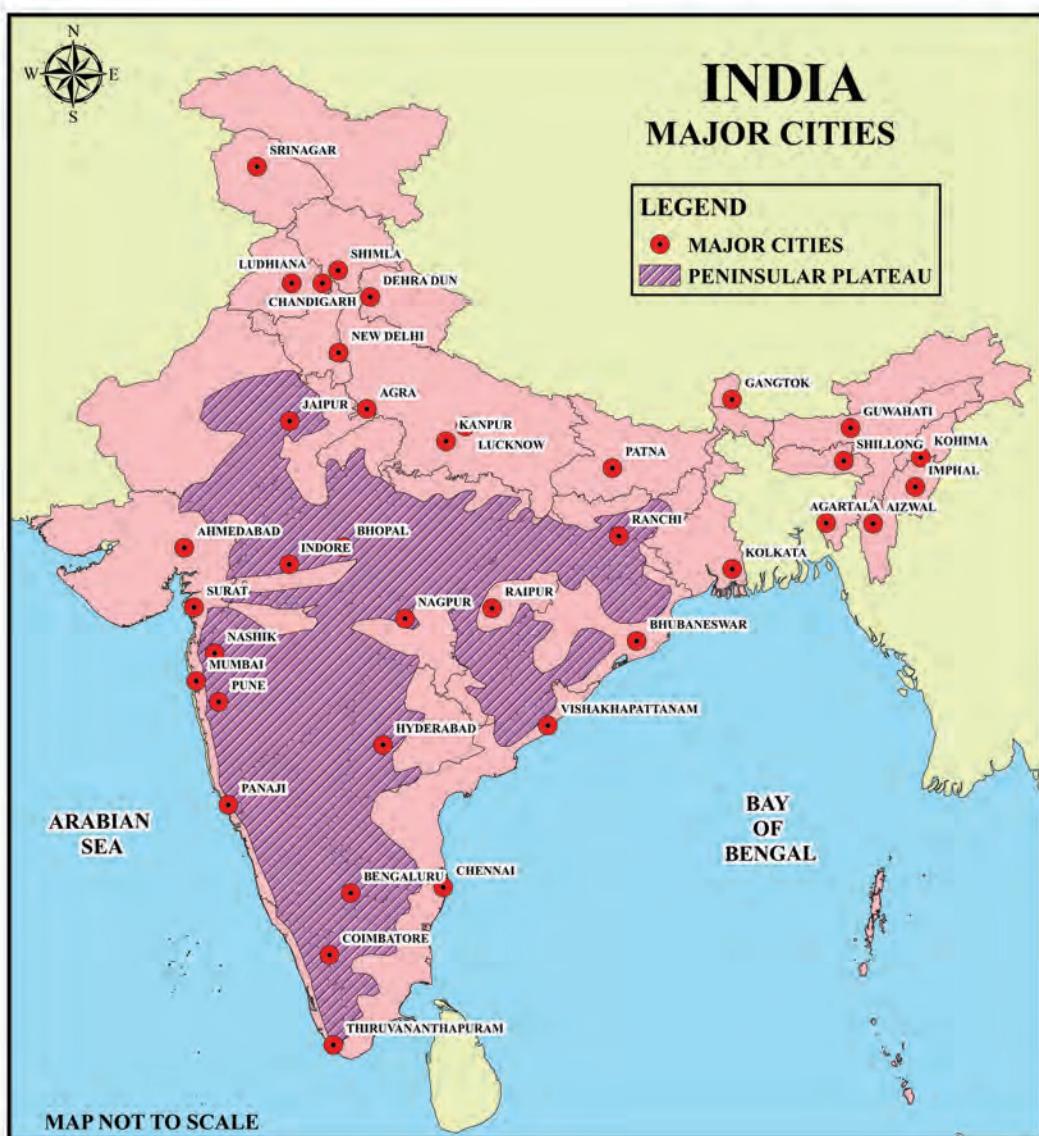


Fig 3.21



- ▶ Identify the major metropolitan cities in the Peninsular Plateau from the given map (Fig. 3.21).
- ▶ Mark and label the major cities in the map and incorporate in My Own Atlas.

Peninsular Plateau is a perfect example for the human effort overcoming the physical obstacles through human resource development, thus making impossible things possible.



Extended activities

1. Mark and label the major mountain ranges, hills and plateau regions of the Peninsular Plateau in a map and prepare a chart.
2. Prepare a map showing the major rivers of the Peninsular Plateau and display it in the class room.
3. Mark the major mining regions of the Peninsular Plateau in a map with appropriate symbols and display in the Social Science Lab.
4. Find out the major industries in the Peninsular Plateau and analyse the role of mineral resources and agriculture in their distribution pattern.



4

Human Resources for National Development

We lead our lives by fulfilling our daily needs. What differentiates humans from other living beings is the fact that they produce and distribute the goods and services they need. Many factors are required to produce any product.

Picture of farmers cultivating paddy under the leadership of the local 'Padashekhar Samrakshana Koottayma' is given below (Fig 4.1).



Fig 4.1



Can you find out the factors used in paddy cultivation?

- Farmfield
- Seed
-
-
-

Arrange the above factors you have identified, in the table given below.

Land	Labour	Capital	Entrepreneurship/ Organisation)

In previous classes, you have understood that the factors of production are land, labour, capital and entrepreneurship. These can also be called the economic resources. You have found that all the natural resources, like soil and water, are part of the Earth. Labour encompasses all intellectual or physical efforts done by people for reward. We find that machines and equipments are used in the paddy cultivation process. All man-made resources that aid the production process are capital. Entrepreneurship is the process of combining land, capital and labour appropriately to make production possible.

The above four factors are essential in the production process of any product. For utilising these, the land is rewarded with rent, labour with wages, capital with interest and entrepreneurship with profit.



What are the different purposes for which the paddy cultivated in the farmlands can be used by the producers?

- For food
- For sale
-
-
-

Producers charge a fixed price and exchange the product in markets. The money that they receive through this is their income. How were goods exchanged when money did not exist? The system that was prevalent in those days was that the goods were exchanged for goods. This is known as Barter System. This system had many drawbacks too.



Can goods be exchanged for goods in all cases?



Write down the disadvantages of the Barter System.

- Difficulty in determining the price of goods
-
-
-
-

How could have humans overcome these limitations that existed in exchange? Look at the figure 4.2.

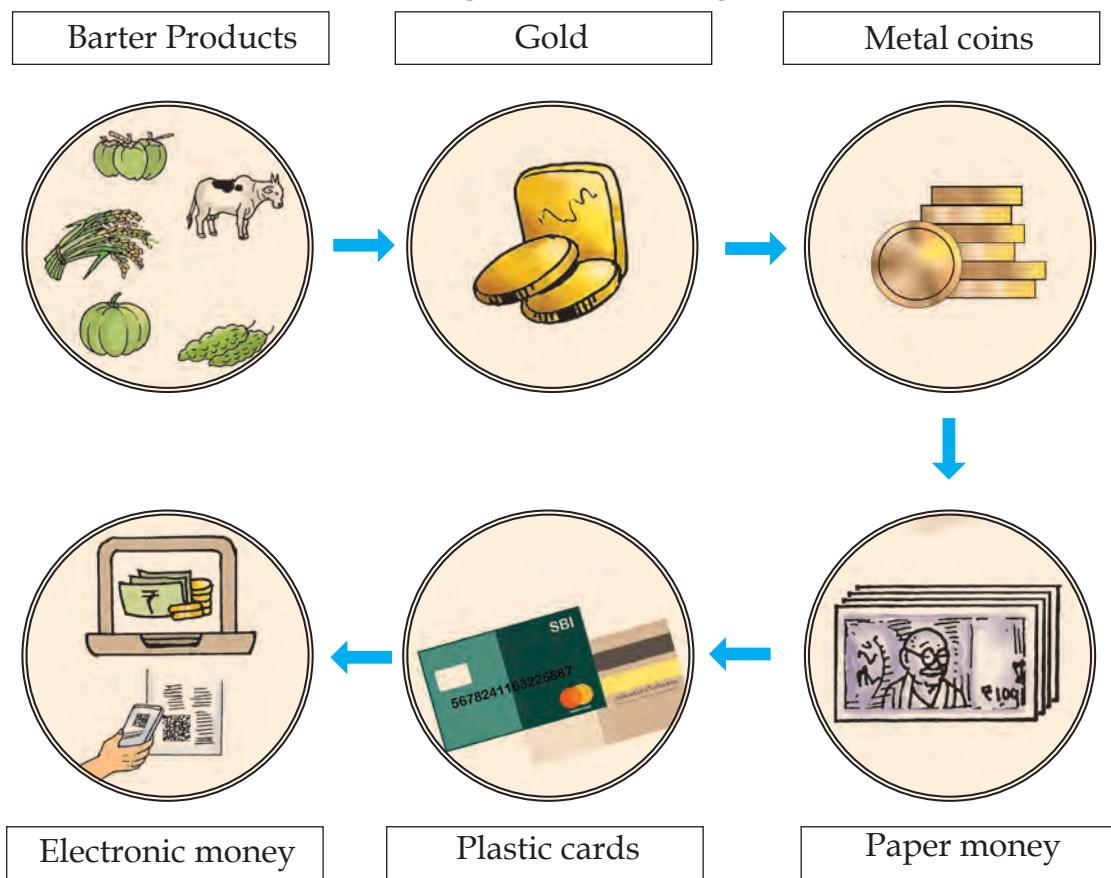


Fig 4.2
Evolution of Money

In the early stages of the evolution of money, many things like animal skins, agricultural products, cattle etc. were used as money. As metals became available, gold and various types of metals and then metal coins were used as money. Trade gradually shifted to paper money as it could be more conveniently used as a common medium. As the concept of market assumed new dimensions and technology started dominating in all areas, money was transformed into a form that we see today or are familiar with, such as card (plastic) money and electronic money.



Based on Fig 4.2, discuss the topic 'Evolution of Money' and prepare a note by adding more ideas.

With the acceptance of money as a common medium of exchange, money became the basic unit of all economic activities. Just as products were priced, all factors of production could be priced and paid in terms of cash as reward. Which form of remuneration reaches more people in terms of rent, wages, interest and profit? In that case, which factor of production is mostly used in the production process? Labour is the most important factor in a production process. For most people, wages earned for their labour are their source of income.

Human Resource

We are now familiar with the factors of production (economic resources) involved in the production process. Have you ever thought of the importance of human resources among them? The term 'Human Resources' denotes people who can work and can be used in the production process.

Human resources are able to convert the available natural resources into products using physical powers and intelligence, with the help of other factors of production.

Productivity is the critical component in determining the quality of human resources. Are all people equally productive? Observe the images (4.3a, 4.3b) given below.



Fig 4.3 (a)



Fig 4.3 (b)



Observe and find out from figures 4.3(a) and 4.3(b), who are the most productive producers and what factors helped them to do so. Write it down.

.....
.....
.....

Productivity is the ability of each factor of production to produce goods and services.

People of a country are one of the factors that provide the human resources of that country. Can the entire population of a country be considered as human resources?

What kind of people can be considered as the human resources of the country? The main factors influencing human resources are size, composition and skills of the population. Statistics indicate that India ranks first in the world population. Observe the Population Pyramid of India given below.

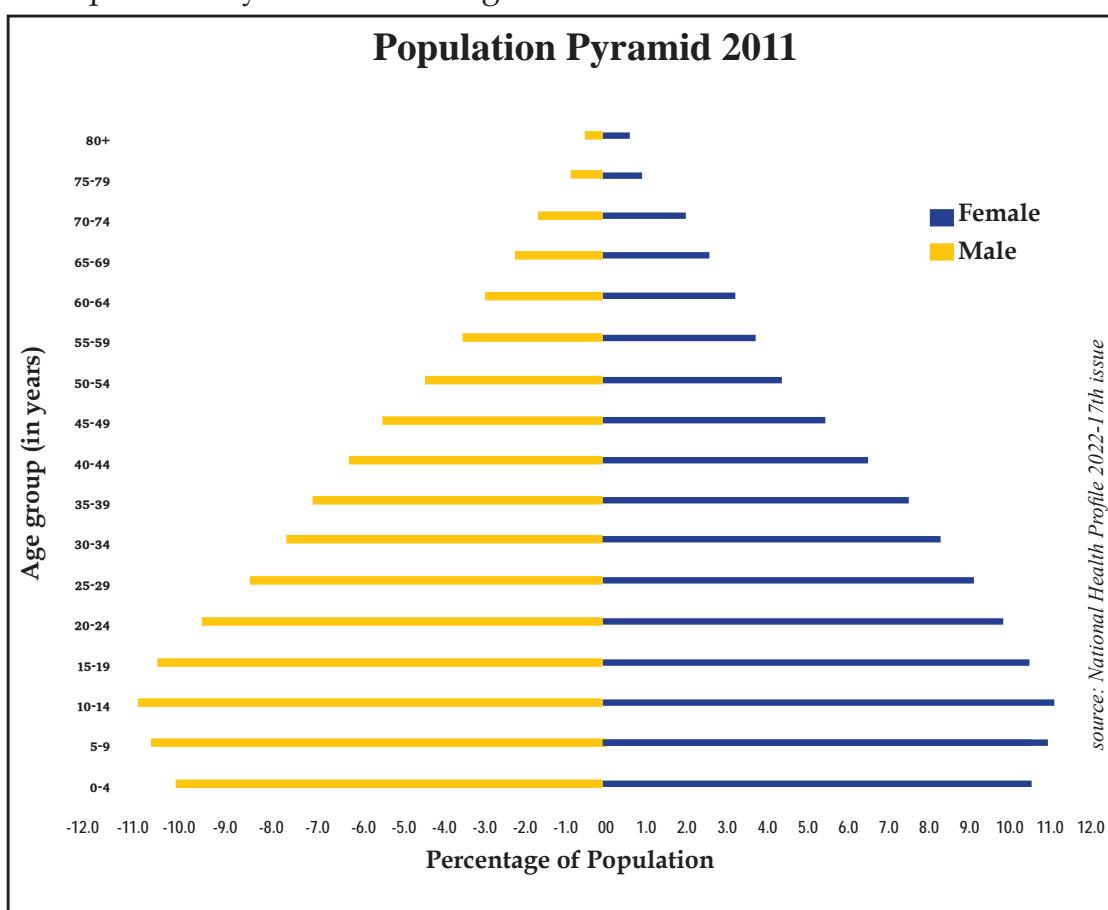


Fig 4.4
Population Pyramid 2011



Observe the Population Pyramid of India (Fig 4.4) and try to answer the following questions.

- In which age group do we have the most number of people?
- Which age group do you fall into?
- Which age group has the least number of people?
- Find the ratio of men and women (sex ratio) in each age group.



Which age group is likely to have more willingness and ability to work? Why?

Hope you have understood the structure of the Population Pyramid. The population structure of a country consists of people belonging to different age groups. It is not the size of the population but its quality that determines human resources. According to the Periodic Labour Force Survey (PLFS) Report published by the Government of India in February 2023, the labour force of the country is the population of 15 years of age and above who are willing and able to work. If the number of people belonging to this age structure is high, it positively influences the income and growth of the economy.



What does positively influence the income and the growth of a country's economy? Its population or labour force? Discuss and prepare a note.

You have understood what human resources and productivity are. Can human resource productivity be increased? Human resource is the dynamic factor of production. Human resources can be made more efficient by ensuring higher education, proper training and healthcare. Human capital formation is possible when more investments are made on the above factors to increase productivity.

Human Capital

Why do we acquire education? As human resources, we become human capital through education and job training. Human capital is the economic value of human resources. Human capital formation is the additions made over periods of time to the stock of human capital.



Write down the forms of human capital you are familiar with.

- Farmers
- Teachers
- Scientists
-
-
-

It is necessary to increase the human capital if the growing labour force in India's population is to be beneficial to the country.



How can we strengthen the human capital?

- Provide better health facilities
- Enable large scale investment in education
- Emphasize skill development
- Create an employee-friendly work environment
-
-
-
-
-

Factors Influencing Human Capital Formation

Factors influencing human capital formation include education, healthcare, job training, migration and access to information.

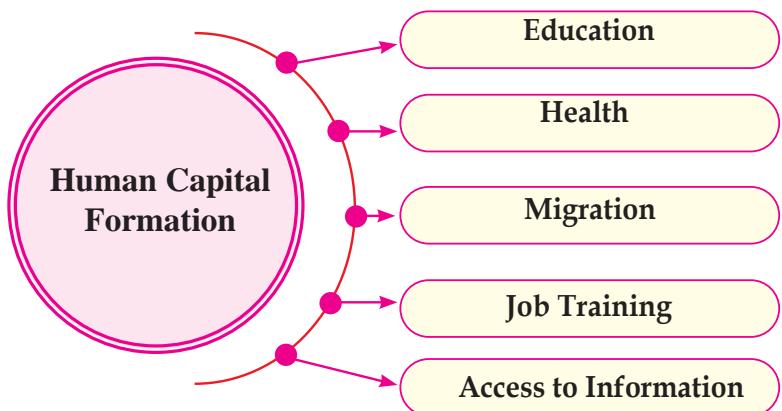


Fig 4.5
Factors influencing human capital formation

Let's discuss in detail these factors that influence human capital formation.

Education

Why do parents give so much importance to education?



Knowledge Economy

It is essential for the modern era to achieve maximum economic growth by integrating intellectual capacity and information technology. The Knowledge Economy is an economic system that utilises intelligence along with innovative technological ideas and information technology in various fields of economic activities. It aims at the production of intellectual products by converting intellectual capacity into intellectual capital and also the buying and selling of intellectual products. Scientists, researchers, policymakers, experts in shares and taxation and software developers are human resources that strengthen this sector. Institutions like Technopark and Infopark are assets that accelerate the growth of the Knowledge Economy.

What changes does education bring in us? Aren't educated and skilled people a nation's asset? How do they influence the development of the country?

Through education, people can use modern technology effectively, acquire better jobs, earn more income and thereby become an asset for the growth of the country. Apart from achieving a high standard of living through education, it is also possible to create a society with a high sense of values. Development of human resources into human capital requires massive investment in the public, cooperative and private sectors.

Through this type of investment, educational policies can be implemented and technologically innovative projects can be devised and implemented in the education sector. This is essential for the growth and development of the economy.



Observe the picture below and understand how education leads to the progress of the country. Discuss and note down the ideas.

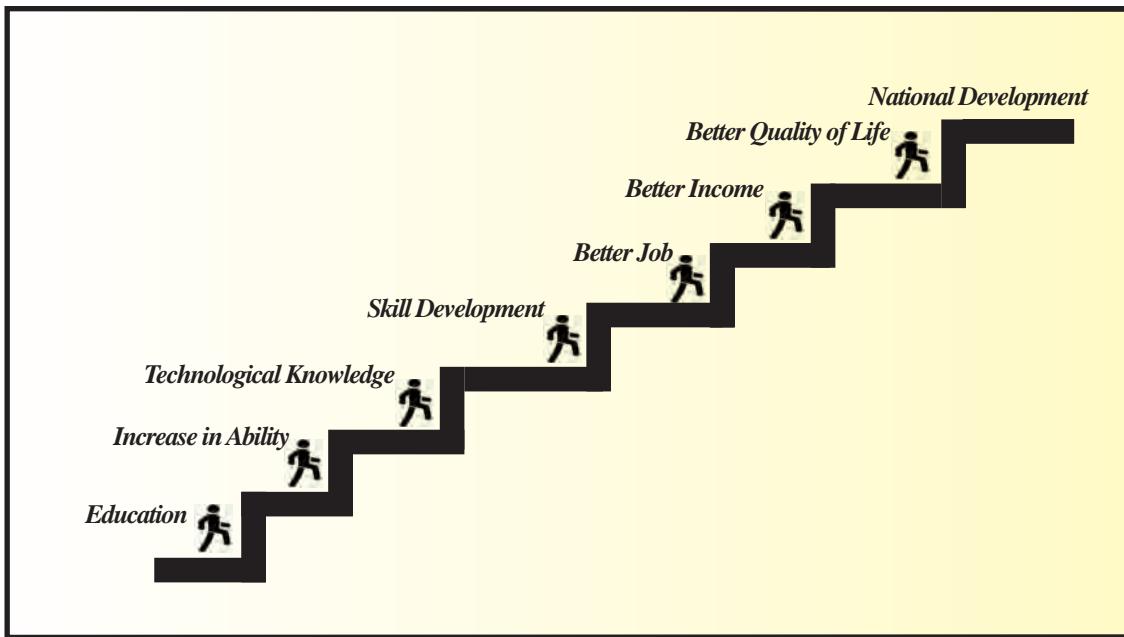


Fig 4.6

A healthy population, like education, is an important factor influencing human capital formation.

Health

What is health? The World Health Organization (WHO) defines health as a state of physical, mental and social well-being. People with poor health cannot contribute effectively to the progress of the country unless they receive adequate consideration and healthcare. How does declining health affect individual and national development?

- Decreases productivity
- Refrains from work
- Slows down production
-
-
-
-

It is essential to ensure the healthcare of the people to achieve the progress of the country along with raising the standard of living of the individuals. Healthcare plays a fundamental role in human resource development by influencing people's productivity and by increasing the quality of life.



What are the healthcare measures to be taken to increase the productivity of human resources? Give your suggestions.

- Strengthen immune systems
- Give importance to hygiene
- Ensure adequate availability of nutritious foods
- Provide better medical facilities
- Ensure recreation and relaxation
-
-
-

We see many establishments around us committed to healthcare. Such healthcare centres are functioning in public, private and co-operative sectors. Healthcare activities are being carried out efficiently in the public sector with a focus on public welfare. Different healthcare systems in the public sector are health sub-centres, primary health centres, community health centres, taluk hospitals, district hospitals and medical colleges. In addition to this, many institutions provide various treatment facilities in various fields like Ayurveda, Yoga, Naturopathy, Unani and Homeopathy.



Find out the various healthcare activities in your locality and prepare a note.

Government investments in the health sector strengthen human capital formation. Preventive medicine, immunization, curative medicine, access to nutritious food, promotion of health literacy, supply of clean drinking water and sanitation measures are implemented through health care systems. We can be proud of the fact that Kerala is a model for the world's healthcare activities.

Migration

Is there anyone in your family working in other states or foreign countries? Haven't you noticed people moving from our state to other states or foreign countries or from there to our state or country for employment, education or for a higher standard of living? Migration is the permanent or temporary movement of people from one region to another region. It causes many changes in the social, economic and cultural spheres. It is the responsibility of the Government to observe and understand the regional changes resulting from migration and bear the expenditure to meet the basic needs. This helps to form the human capital in the region.

Job Training

Skill development training is mandatory for getting jobs in certain fields. Doctors, engineers, and teachers acquire professional skills through training courses suitable for their fields. Similarly, the respective institutions provide job training at various stages to their employees. Acquiring job training can help increase productivity, thus enabling higher output. Job training will bring human capital formation to its peak.

Access to Information

Another factor that helps in human capital formation is access to Information. Services in various sectors such as education, health and employment give impetus to human capital formation. Access to information needs to be fostered to help people gather information about the services provided. Government intervention is essential to enable human capital formation by ensuring the access to information.

Challenges faced by Human Capital Formation

Poverty

Poverty is the state of not being able to meet even our basic needs. This is the biggest challenge faced by human capital formation. It is the low income that pushes people into poverty. Due to low income, people are unable to meet even their basic needs like education and health, further leading to poverty. The causes and consequences of poverty are endlessly interconnected as in a circle. Human capital formation will be possible only if this is broken by improving human resources.



Observe the picture given below (Fig. 4.7) and discuss how the causes and consequences of poverty are related.

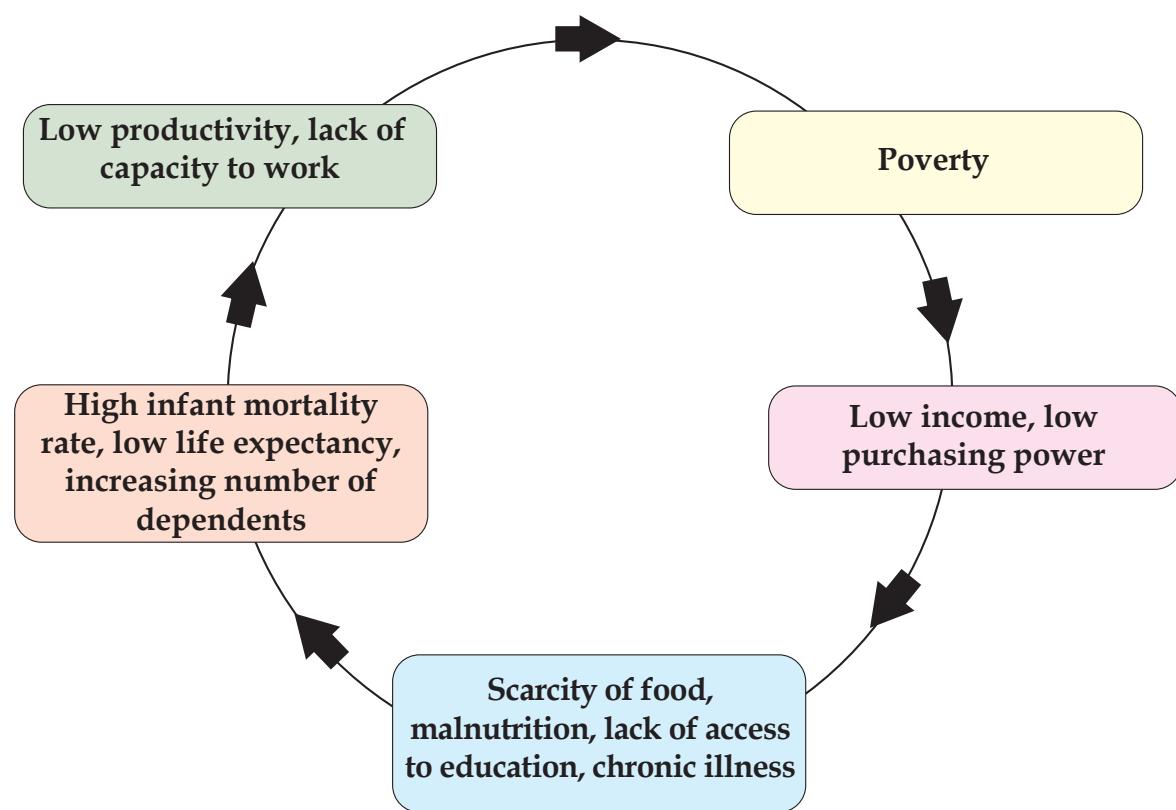


Fig 4.7

Poverty creates barriers to access adequate education and healthcare. Central and state governments have been formulating and implementing various schemes, policies and laws periodically to free people from the clutches of poverty. Kerala is a model to other states in implementing poverty alleviation schemes.



Collect information and make notes on various poverty alleviation programmes and policies implemented by Central and State Governments.

Unemployment

Haven't you heard about unemployment?



How does unemployment affect our lives?

Unemployment is a condition in which a healthy and capable person who is willing to work at the prevailing wage rate, cannot find work. Lack of opportunities to get employment on par with one's education and skills hinders the maximum utilisation of human resources. Human capital formation is possible only if human resources are utilised to the maximum.

There are various types of unemployment in the country. The important ones are given below.

- Open unemployment, or, willing to work but unemployed.
- Structural unemployment, or, job loss due to the introduction of new technology.
- Seasonal unemployment, or, employment during a particular season and remaining unemployed during the rest of the time.
- Disguised unemployment, or, a condition where more than the number of labourers required are employed in production process without any change in total output.



Collect information related to unemployment from a few households in your neighbourhood. What type of unemployment is most prevalent? Discuss and write down the causes and solutions.

The role of human capital formation in making a country an economic power is boundless. We have found that the main factors that influence human capital formation are education, health, migration, job training, access to information etc. Therefore, it is the prime duty of governments to give due attention and consideration to these areas. A nation can progress well by making human capital formation possible. This can be done by effectively utilising human resources to the full through suitable programmes, schemes and precise planning.



Extended Activities

1. 'A change in the productivity of the factors of production can increase the total output'. Based on this statement, find out various ways to make factors of production like land, labour, capital and entrepreneurship more productive.
2. Collect information on the educational policies implemented by India since Independence to modernise the education sector of the country. Prepare and present a seminar paper on it.
3. Collect information about the various schemes initiated by the state government to improve general education.
4. Collect information and prepare a note on the various schemes implemented by the central and state governments in the health sector.



MAP NOT TO SCALE

CONSTITUTION OF INDIA

Part IV A

FUNDAMENTAL DUTIES OF CITIZENS

ARTICLE 51 A

Fundamental Duties- It shall be the duty of every citizen of India:

- (a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- (b) to cherish and follow the noble ideals which inspired our national struggle for freedom;
- (c) to uphold and protect the sovereignty, unity and integrity of India;
- (d) to defend the country and render national service when called upon to do so;
- (e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (f) to value and preserve the rich heritage of our composite culture;
- (g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;
- (h) to develop the scientific temper, humanism and the spirit of inquiry and reform;
- (i) to safeguard public property and to abjure violence;
- (j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievements;
- (k) who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between age of six and fourteen years.

CHILDREN'S RIGHTS

Dear Children,

*Wouldn't you like to know about your rights? Awareness about your rights will inspire and motivate you to ensure your protection and participation, thereby making social justice a reality. You may know that a commission for child rights is functioning in our state called the **Kerala State Commission for Protection of Child Rights**.*

Let's see what your rights are:

- Right to freedom of speech and expression.
- Right to life and liberty.
- Right to maximum survival and development.
- Right to be respected and accepted regardless of caste, creed and colour.
- Right to protection and care against physical, mental and sexual abuse.
- Right to participation.
- Protection from child labour and hazardous work.
- Protection against child marriage.
- Right to know one's culture and live accordingly.
- Protection against neglect.
- Right to free and compulsory education.
- Right to learn, rest and leisure.
- Right to parental and societal care, and protection.

Major Responsibilities

- Protect school and public facilities.
- Observe punctuality in learning and activities of the school.
- Accept and respect school authorities, teachers, parents and fellow students.
- Readiness to accept and respect others regardless of caste, creed or colour.

Contact Address:



Kerala State Commission for Protection of Child Rights

'Sree Ganesh', T. C. 14/2036, Vanross Junction

Kerala University P. O., Thiruvananthapuram - 34, Phone : 0471 - 2326603

Email: childrights.cpcr@kerala.gov.in, rte.cpcr@kerala.gov.in

Website : www.kescpcr.kerala.gov.in

Child Helpline - 1098, Crime Stopper - 1090, Nirbhaya - 1800 425 1400

Kerala Police Helpline - 0471 - 3243000/44000/45000

Online R. T. E Monitoring : www.nireekshana.org.in